FLORIDA POLYTECHNIC UNIVERSITY

Department Clarification "Framework"

Department: Physics_____

Clarifications formally approved on: _____

Departmental clarifications:

1.0 Instruction

Core Criterion: A faculty member must clearly be contributing to the instructional mission by demonstrating proficiency and breadth in instructional quality and capacity.

In the Physics Department, high quality teaching is the top departmental priority.

1.2 Overall Criterion Considerations & Requirements

1.2 (A) A faculty member must clearly be contributing to the instructional mission

Physics is foundational for many majors at Florida Poly and, as such, special emphasis is placed on quality instruction in the introductory physics sequences: PHY 2048&L/2053&L (Physics 1, Algebra/Calculus based) and PHY 2049&L/2054&L (Physics 2, same). It should be noted that these are highly coordinated courses with relatively high enrollment and a variety of student interests.

Though they are taught less frequently, upper-level physics courses are vital to support the bachelor's degrees in engineering physics and physics. These courses require a considerable amount of course development and refinement.

1.2 (B) Instructional effectiveness

Quality instruction in physics typically involves interactive and engaging lectures. Faculty should employ any of a variety of pedagogical best practices that ensure student engagement. This list includes techniques like think-pair-share, the use of in-class quizzes, real time polling, and worksheets.

An effective use of technology that promotes student development toward concept building, critical-thinking, and problem-solving skills is the goal. The development and use of in-class demonstrations and problem-solving supplements are all valued.

1.2 (C) Student assessment of instruction

Student evaluations are generally valued by the department. The faculty's self-reflection, analysis of student evaluations, considerations of student success, and changes made to instructional practice after analyzing student feedback is more valuable than raw evaluation data.

1.3 Factors to consider in terms of "effort"

1.4 Factors to consider in "quality"

The ultimate measure of quality instruction in physics is in student preparation and success in future coursework and in their career. Academic preparation in physics is a balance between a variety of industries and graduate work in a variety of scientific and engineering fields.

1.5 Further Criterion Considerations

The department places a high value on professional development to improve instruction and course delivery. Attending and presenting at educational workshops are some examples of professional development. Physics education research-related publications or articles published in journals that specialize in physics education (e.g., American Journal of Physics or The Physics Teacher) illustrate a deep commitment to the educational mission of the Department of Physics.

New course development and significant course redesign are important ways that faculty members contribute to the department's mission.

2.0 Research or Other Creative/Scholarly Activities

Core Criterion: a faculty member has **a unique and scholarly expertise in their field** and has activity that aligns with this professional direction.

The Physics Department values the teacher-scholar model for faculty at primarily undergraduate institutions. Full-time faculty are expected to perform meaningful research in any subfield of physics, interdisciplinary science or engineering. Faculty are also encouraged to promote active participation of undergraduates in their research activities. Publications with undergraduate researchers as coauthors should be the goal whenever possible.

As in most STEM fields, meaningful contributions to physics are primarily measured through peer reviewed publications. The minimum research output expectation is one substantive publication every other year along with an appropriate balance of other scholarship and service.

The quality of a publication can be measured through the tier of the journal, the number of citations, or other indications of impact on the discipline. Faculty members are responsible for informing their evaluators on the tier of the journal, their role in the research presented, and the impact (or potential impact) that each publication has had.

2.2 Further Criterion Considerations

Each distinctly different patent that is awarded can be considered in place of the publication count in a given review period.

Externally funded grants are an excellent mechanism to support sustainable scholarly output. As such, the department recognizes externally funded grants as exceptional.

Other recognized scholarly activities include:

- external recognition (e.g., society awards and fellowships),
- society service (e.g., as a meeting organizer, a session chair, or a reviewer),

- presentations at society meetings (and support for student poster presentations), and other invited talks (including seminars, colloquia, etc.),
- other scholarly publications (e.g., book chapters, reviews), and
- developing, supporting the use of, and maintaining infrastructure for scientific research.

2.3 Proposal and grant application

3.0 Service: a faculty member is contributing to their department and profession in a positive way.

3.2 Criterion Considerations

The Physics Department places a high value on quality academic advising and mentoring. Committee work is highly valued because it can result in contributions to the department and university. Department leadership can take many forms. One of the most vital is coordination of introductory physics courses and labs.

Faculty who demonstrate leadership and coordination while supporting quality advising and mentoring among colleagues should be recognized for their contribution to the program. Similarly, faculty who put in time and effort to support and lead students in organizations and clubs that make a positive contribution to student's professional development should likewise be recognized.

In summary, committee service to the university, and service to the department (supporting university recruitment, hiring, faculty evaluation, etc.) are necessary and a subset is needed from each faculty member in the department.

3.3 Special Consideration of Administration Contribution

4.0 Overall recommendation:

Teaching is the primary function of the Physics Department faculty. The secondary faculty priorities in the department are scholarly output and service to the department and university.