

LIFE AND PHYSICAL SCIENCES

FOUNDATIONAL COMPONENT AREA JUSTIFICATION FORM

Rationale: Please provide a rationale for the course which explains how the course being proposed fits into this component based on the component's description. For your convenience, the overall description and rationale for this component are included below.

Life and Physical Sciences (from THECB Chapter 4: 4.28)

- Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method.
- Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.
- The following four Core Objectives must be addressed in each course approved to fulfill this category requirement: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, and Teamwork.
 - Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information;
 - Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication;
 - Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions;
 - Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Rationale for Inclusion in this Category:

The course is designed to teach the scientific method and principles of physics to explore natural phenomena. The course will also allow students to learn how science has a deep influence on our daily life and society. Physics 102 is a course for education majors who intend to become K-12 teachers.

STUDENT LEARNING OUTCOME ALIGNMENT FORM

Life and Physical Sciences

Course Prefix/Number: PHYS102

Course Title: Essential Elements of Physics

Core Objective: Critical Thinking CT1: Students will evaluate evidence in analysis, interpretation or arguments

Course SLO(s): Students will identify the physical principle(s) upon which scientific theory is based.

Learning Activities: Observations in laboratory settings, class discussions

Means of Assessment: Embedded questions on major exams, laboratory exam or the final exam.

Core Objective: Critical Thinking CT2: Students will synthesize varied components of information to form a rational conclusion.

Course SLO(s): Students will learn to distinguish between scientific and non-scientific investigations.

Learning Activities: Observations in laboratory settings, class discussions

Means of Assessment: Embedded questions and problems on major exams, laboratory exams and the final exam.

Core Objective: Communication C1: Students will express ideas in written, visual or oral forms to a range of diverse audiences in multiple settings.

Course SLO(s) - Students will describe the basic physical principles and the related discoveries and inventions. They will also describe how all these connect science to technology and influence our daily life and society.

Learning Activities – Student will use visual aids (such as graphs, diagrams and figures) to communicate their findings.

Means of Assessment: Embedded questions and problems on major exams, laboratory exams and the final exam.

Core Objective: Empirical and Quantitative EQS1: Students will gather, interpret or use numerical data/observable facts to arrive at an informed conclusion.

Course SLO(s) - **Students will collect and evaluate data in experiments.**

Learning Activities: **Student will perform several experiments in the laboratory during the course of a semester. They will submit laboratory reports and show what they have learned by taking a laboratory exam.**

Means of Assessment - **Assessment will be based on laboratory reports and laboratory exam.**

Core Objective: Teamwork TW1: Students will work in coordination to complete specific tasks.

Course SLO(s) - **Students will work in small teams to design and construct simple physical devices or models to illustrate the physical principle they have learned in class lectures and laboratories.**

Learning Activities – **Two projects done in teams, will be assigned during the course of the semester.**

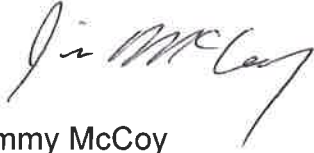
Means of Assessment –**Each student will provide evaluation on their team member for each project and answer one written question related to the project. This data will be used by the instructor to evaluate the contribution of each student to the project and the performance of each team.**

As department head, I will ensure that all faculty that teach this course are aware of the requirements that these core objectives and learning strategies be incorporated into the above referenced course. This action is taken so that Tarleton State University will be in compliance with Texas Higher Education Coordinating Board foundational component area and core objective requirements for the General Education Core Curriculum.

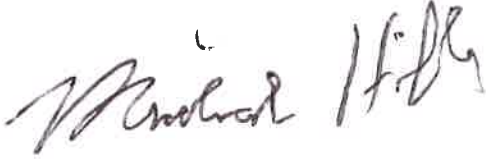
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We, the undersigned faculty, support the proposed changes to this course and agree to incorporate them into our section of the above referenced course. This action is taken so that Tarleton State University will be in compliance with Texas Higher Education Coordinating Board foundational component area and core objective requirements for the General Education Core Curriculum.

(Signed document should be kept in department office, listing names below on the electronic document implies acceptance)



Jimmy McCoy



Michael Hibbs



Shaukat Goderya



Daniel Marble