

**Core Curriculum
Course Proposal Cover Sheet**

Department: Chemistry, Geosciences and Physics
College: COST
Department Head: Dr. Arthur Low

Course Prefix & Number: PHYS 101

Course Title: **Great Ideas in Physics**

Course Description: Great Ideas of Physics is a laboratory science course designed to introduce the students to the concepts of physics in an elementary mathematical setting, and to discuss their significance to science, technology, and society. Topics will be drawn from both classical and contemporary physics

Please select the THECB Foundational Component Area for which this course is being submitted. (Please select only one)

Life and Physical Sciences

Checklist:

Course Proposal Cover Sheet

Foundational Component Area Justification Form

Student Learning Outcome Alignment Form

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:

Physics 101 is a course is designed to teach students not only physics but how will also allow student to learn the connection between science and technology and its influence on daily life and society.

STUDENT LEARNING OUTCOME ALIGNMENT FORM
Life and Physical Sciences

Course Prefix/Number: PHYS 101

Course Title: Great Ideas in 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 a scientific theory is based.

Learning Activities: Student will use class time and laboratory activities to develop skills to analyze how observations and premises are use to formulate a scientific theory and how these are use to prove or disprove a theory.

Means of Assessment: Embedded questions on major exam, laboratory 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 be able to distinguish between between scientific and non-scientific investigations

Learning Activities: Student will use class time and laboratory activities to learn the differences between science and technology and science and pseudoscience.

Means of Assessment: Embedded questions and problems on major exams, laboratory 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 discuss basic physical principles and the related discoveries and inventions. They will also describe how all these connect science to technology and influence daily life and society.

Learning Activities - Student will use visual aids (such as graphs, diagrams and figures) to formulate their answers. Students will work in small teams to develop and present a PowerPoint presentation on new or important technology to the class

Means of Assessment: The PowerPoint presentation will be graded by the instructor and the class using a rubric.

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 use ordinary materials and simple scientific equipment to conduct experiments, collect data and present their conclusions.

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 grading submitted reports for completeness and correctness.

Means of Assessment - Assessment will be based on grading laboratory reports and laboratory report for completeness and correctness.

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

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

Learning Activities - This will be done by assigning two projects during the course of the semester.

Means of Assessment - A small percentage of the total class grade will be assigned to the projects. Each team will demonstrate their device or model by participating in a class wide design competition. Each student will also be asked to 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.

Arthur Low

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)

Dr. Jim McCoy

Dr. Shuakat Goderya

Dr. Michael Hibbs