Degree Learning Goals for the B.S. in Chemical Physics

DLG 1: Establish a Foundation and Depth of Knowledge Pertaining to Fundamental Chemical and Physical Principles.

SLO 1.1: Recognize the importance of classical physical theory including mechanics and electromagnetism to chemical theory
SLO 1.2: Recognize, describe, draw, and name, important classes of atoms, functional groups, and molecules.
SLO 1.3: Describe the atomic and subatomic structure and properties of matter with an in-depth understanding of the underlying quantum mechanical theory.
SLO 1.4: Describe the origin and properties of chemical bonding and the influence on structure and properties of the molecules.
SLO 1.5: Describe how the macromolecular properties of matter are determined by the molecular characteristics.
SLO 1.6: Predict the outcome of, and describe the mechanisms for, various chemical reactions.

DLG 2: Demonstrate Competency in Problem Solving and Quantitative Reasoning

SLO 2.1: Demonstrate the ability to quantify and interpret the reliability of measured physical and chemical properties of molecules and mixtures employing dimensional and appropriate statistical analysis.
SLO 2.2: Demonstrate knowledge of the main techniques employed to synthesize, separate, purify, identify, and quantitate chemical compounds.
SLO 2.3: Develop knowledge of how to apply the scientific method in exploring chemical and physical phenomena.

DLG 3: Develop Skills used in Professional Settings

SLO 3.1: Develop proficiency with modern instrumentation and techniques relevant to physics and chemistry.
SLO 3.2: Demonstrate the ability to read and comprehend a Standard Operating Procedure.
SLO 3.3: Maintain clear and legible record of laboratory work.
SLO 3.4: Develop knowledge of proper and safe chemical use, storage, and disposal.
SLO 3.5: Exhibit effective oral and written communication skills.
SLO 3.6: Develop the skills to effectively collaborate on complex projects.
SLO 3.7: Exhibit knowledge of scientific ethics relating to treatment of data, proper citation of others' work, plagiarism, and publication of scientific results.

DLG 4: Effectively Employ Physical and Chemical Literature and Information Management Systems.

SLO 4.1: Retrieve information efficiently and effectively by searching the scientific literature.
SLO 4.2: Develop the capability to evaluate technical articles critically.
SLO 4.3: Develop and maintain a personal database of relevant scientific literature.