Programme Learning Outcomes for Physics Graduates

(Revised in March, 2009)

The following is a specification of the key learning outcomes (knowledge, skills, values and attitude) for Physics graduates at The Chinese University of Hong Kong.

1. Knowledge Outcomes (Content)

Graduates should possess fundamental knowledge of physics, including basic concepts and principles in

(1) classical mechanics, electrodynamics, quantum mechanics and thermodynamics;
(2) mathematical (analytic and numerical) methods and experimental methods for physics.

Graduates should be able to transfer and apply the acquired concepts and principles to study different branches of physics.

2. Skills Outcomes

Professional Skills

Graduates should have acquired the following professional skills to deal with representative physics problems and situations at the undergraduate level:

(1) identifying the key factors and applying appropriate principles and assumptions in the formulation of physics problems;
(2) applying appropriate analytical and approximation methods;
(3) applying general experimental and measurement skills with prescribed procedures;
(4) analysing experimental data and their level of uncertainty, and relating the experimental results with theoretical expectations;
(5) applying appropriate scientific programming skills;
(6) reporting the solutions to physics problems, experimental or project studies either orally or in written format.

Graduates should be able to integrate and apply these skills to study different branches of physics.

Generic Competencies

Graduates should have acquired some generic skills in their study, including the following:

(1) identifying the key issues and attempting different methods in dealing with *general* problems;
(2) manipulating precise and intricate concepts to construct logical arguments;
(3) paying attention to the details and their logical relationships when analysing an issue;
(4) evaluating an issue critically based on evidence and scientific principles;
(5) being comfortable with numbers and analysing an issue quantitatively;
(6) acquiring knowledge effectively by self-study and work independently;
(7) working effectively in a team;
(8) presenting information in a clear, concise and logical manner; and
(9) having good time management skills.

3. Attitude/Value Outcomes

Graduates should have developed some positive attitudes and values, including the following:

(1) appreciation of physics principles and theories, and the beauties of physics;
(2) awareness of the impact of physics in social, economical, and environmental issues;
(3) willingness to take up responsibility in study and work;
(4) confidence in his/her capabilities; and
(5) motivation for life-long learning.