NES 525000 保健物理

Spring 2022

上課時間: R2R3R4　　教室：綠能館 202 室

教師：蔡惠予(huiyutsai@mx.nthu.edu.tw)　　辦公室：綠能館 506 室

助教：　　辦公室：綠能館 503 室

Office hour：W34

一、課程說明(Course Description)

Health physics is a professional field that cuts across the basic physical, life, and earth sciences as well as such applied areas as toxicology, industrial hygiene, medicine, public health, and engineering. The scientific and engineering aspects of health physics are concerned mainly with (1) the physical measurements of different types of radiation and radioactive materials, (2) the establishment of quantitative relationships between radiation exposure and biological damage, (3) the movement of radioactivity through the environment, and (4) the design of radiologically safe equipment, processes, and environments.

Keywords: Health Physic, Radiation Protection

二、指定用書(Textbooks)

1. Cember, H., & Johnson, T. E. (2009). Introduction to Health Physics (Fourth Edition). McGraw-Hill Companies.
2. Turner, J. E. (2008). Atoms, Radiation, and Radiation Protection. John Wiley & Sons. (Ebook download @ NTHU E-Library)

三、教學方式(Teaching Method)

- 課堂上課: 每星期 3 小時 (3-hour lecture per week)

四、教學進度(Syllabus)

Part 1: Health Physics

1. Radiation dosimetry (ch6)

2. Biological Basis for Radiation Safety (ch7)
3. Radiation Safety Guides (ch8)
4. Health Physics instrumentation (ch9)
5. External Radiation Safety (ch10)
6. Internal Radiation Safety(ch11)
7. Evaluation of Radiation Safety measures (ch13)

Part 2: Health Physics in Medicine

1. Radiation Protection in Medicine
2. Diagnostic Reference Level

Part 3: Foundation of Health physics

1. Radiation physical principles (ch2)
2. Atomic and Nuclear Structure (ch3)
3. Radiation sources (ch4)
4. Interaction of radiation with matter (ch5)

五、成績考核(Evaluation)

- 課堂參與與小考(participant & quiz)：10%
- 期中考(Midterm)：30%
- 期末考(Final)： 30%
- 報告與作業 (Presentation)：30%

六、考試時間

- 期中考：2022/4/12
- 期末考：2022/6/14