

光電子學(Optical Electronics)

考試範圍(Scope)：

- 一、Optics and Laser Beams
 1. Ray Optics
 2. Wave Optics
 3. Beam Optics
 4. Electromagnetic Optics
 5. Polarization Optics
- 二、Laser Fundamentals and Applications
 1. Resonator Optics
 2. Photon Optics
 3. Photons and Atoms
 4. Laser Amplifier
 5. Lasers
 6. Electro-Optics
 7. Nonlinear Optics
- 三、Optoelectronic Devices
 1. Semiconductor Optics
 2. Semiconductor Photon Sources
 3. Semiconductor Photon Detectors

註：以上範圍僅供參考(Just for reference)，其內容相當於

- (1) B. E. A. Salah and M. C. Teich, "Fundamental of Photonics, 2nd edition", Wiley (2007)；
- (2) Amnon Yariv and Pochi Yeh, "Photonics, 6th edition", Oxford University Press (2007)之相對內容。

電磁理論(Electromagnetic Wave Theory)

考試範圍(Scope)：

1. Maxwell's Equations and EM waves in an unbounded medium
2. Reflection, Transmission, and Refraction of EM waves at interfaces
3. Waveguides and cavity resonators
4. EM radiation and elementary antennas
5. Field-matter interactions (wave propagation in plasma and frequency response of dielectrics and conductors)

註：以上範圍僅供參考(Just for reference)，其內容相當於

1. U. S. Inan and A. S. Inan, Electromagnetic Waves, Prentice Hall, 2002 (Textbook)
2. D. K. Cheng, Field and Wave Electromagnetics, Addison-Wesley, Chap. 7, Chap. 8, Chap. 10 & Chap 11. 之相對內容。