

中文課程單元主題 (Chinese Units Topic) :

1. 振盪與波

(虎克定律、彈性能、簡諧運動與等速率圓周運動的比較、位置、速度以及加速度隨時間變化的關係、單擺的運動、阻尼振盪、波)

2. 電力與電場

(電荷的性質、絕緣體與導體、庫侖定律、電場、電力線、靜電平衡的導體、電通量與高斯定律)

3. 電能與電容

(電位差與電位、由於點電荷引起之電位與電位能、電位及帶電荷的導體、等電位面、電容、平行板電容器、電容器的組合、儲存於帶電荷電容器之能量、具介電質之電容器)

4. 磁學

(磁石、磁場、帶電導體上之磁力、電流環上之力矩及馬達、帶電質點在磁場中的運動、長直導線的磁場及安培定律、兩平行導線間之磁力、電流環路與螺旋管之磁場、磁田)

5. 感應電壓與電感

(感應電動勢及磁通量、法拉第電磁感應定律、運動電動勢楞次定律(法拉第定律的負號)、發電機、自感 RL 電路)

6. 光的反射與折射

(光的本質、反射與折射、折射定律、色散與稜鏡、惠更斯原理、全內反射)

7. 面鏡與透鏡

(平面鏡、球面鏡成像、折射成像、薄透鏡)

英文課程單元主題 (English Units Topic) :

1. Vibrations and Waves

(Hooke's law, Simple Harmonic Motion, Wave)

2. Electric Forces and Electric Fields

(Electric charges, Coulomb's law, Electric field, Electric flux and Gauss's law)

3. Electrical Energy and Capacitance

(Electric potential, potential energy, capacitance, energy stored in a capacitor)

4. Magnetism

(Electric potential, potential energy, capacitance, energy stored in a capacitor)

5. Induced Voltages and Inductance

(Induced emf and magnetic flux, Faraday's law of induction, Lenz's law, RL circuits)

6. Light and Optics

(The nature of light, reflection and refraction, Huygens' principle, Total internal reflection)

7. Mirrors and Lenses

(Flat mirrors, Images formed by spherical mirrors and lenses, Thin lenses)