生醫工程特論 (Special Topics in Biomedical Engineering)

Biomedical Engineering is a highly multidisciplinary research area that encompassing biomechanics, biomaterials, biosensors, medical instrumentation, medical imaging, and tissue engineering. Most important issue is the engagement with the life science. Recently, medical device research has attracted a lot of attention in Taiwan due to the related industrial prosperity. This course is aiming to provide not only the basic biomedical principles, but also the key technologies, patents and market analysis of medical devices in demand and global trend of medical device research.

1. Introduction to Biomedical Engineering
2. Basic Medical Electronics
3. Physiological Pressure and Cardiovascular Medical Devices
4. Electrocardiography
5. Respiratory System and Its Measurements
6. Nervous Function and Brain Function
7. Medical Imaging: Ultrasonography (1) Physics of Diagnostic Ultrasound
8. Medical Imaging: Ultrasonography (2) System and Instrumentations
9. Medical Imaging: Ultrasonography (3) Color/Power Doppler Imaging
10. Medical Imaging: Ultrasonography (4) Imaging Characteristics and Artifacts
11. Medical Imaging: Radiology and Nuclear Medicine Instrumentations (1)
12. Medical Imaging: Radiology and Nuclear Medicine Instrumentations (2)
13. Medical Imaging: Atherosclerosis Diagnosis
14. Medical Imaging: Liver Cirrhosis Diagnosis

References:

1. Introduction to Biomedical Equipment Technology, 4th Ed. By Joseph J Carr and John M, Brown.