

BMPE3006 LASER AND FIBRE OPTICS IN MEDICINE (3-0-0)

Module I:

Laser – Properties, Laser interaction with tissues, Photo medicine & Photo biology lasers used for medical applications-CO₂, Ruby, Nd-YAG, Ar, Kr, He-Ne. Optical fibers – Coherent and incoherent bundles,

Module II:

Laser & Fiber optics in Dermatology. Endoscopy: Bronchoscope, Gastroscope. Laser and Fiber optics applications in surgery. Laser and Fiber optics applications in Dentistry – Laser Induced carrier inhibition, Laser effects on Dental soft tissues and Laparoscopic Instrumentation

Module III:

Standards, Potential Hazards of lasers, safety regulations and precautions. Medical surveillance.

Module IV:

Light transmission and image transmission systems in rigid and flexible endoscopes. Application of Lasers in Ophthalmology-laser refractor, laser accuracy testing, Laser treatment of Corneal ulcers, Laser Photo coagulators.

Text Book:

1. Biomedical Aspects of the Laser, by Leon Goldman, Springer Verlag, 1967
2. Lasers in Medicine by H. K. Koebmer, John Wiley & Sons, 1980.

Reference Book:

1. Laser Applications in Medicine and Biology vol I, II, III Plenum Press, (1971 & 1974) by M. L. WelBasht.
2. Laser Hand Book, Vol 11, Academic Press London (1972) by F. T. Arrechi
3. Introduction to Lasers and Their Applications by Osheacallen and Rhodes, Addison . Wesley- 1977.
4. Lasers in Photo medicine and Photo Biology by E. D. R. Pratesi& C. A Sacchi, Springer verlac 1980.