SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai
Accredited by NAAC-UGC with 'A++' Grade (Cycle III) &
Accredited by NBA (B.E - CSE, EEE, ECE, Mech & B.Tech.IT)
COIMBATORE-641 035, TAMIL NADU

Department of Biomedical Engineering

Course Code & Name: 19BME301 & Medical Physics

III Year : V Semester

Unit II – INTERACTION OF RADIATION WITH MATTER

Linear Energy Transfer

- Amount of energy deposited per unit path length is called the *linear energy transfer* (LET)
- Expressed in units of eV/cm
- LET of a charged particle is proportional to the square of the charge and inversely proportional to its kinetic energy(velocity)
- High LET radiations (alpha particles, protons, etc.) are more damaging to tissue than low LET radiations (electrons, gamma and x-rays)

Linear Energy Transfer

- The linear energy transfer (LET) is the amount of energy deposited per unit length of the path by the radiation

$$\mathrm{LET} = \mathrm{SI} \times W$$

- an average energy of W is required to produce an ion pair in the absorber

- LET is expressed in units of keV/µm