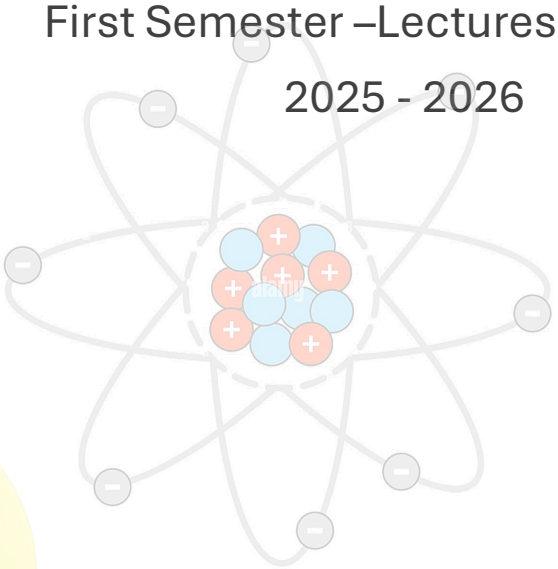
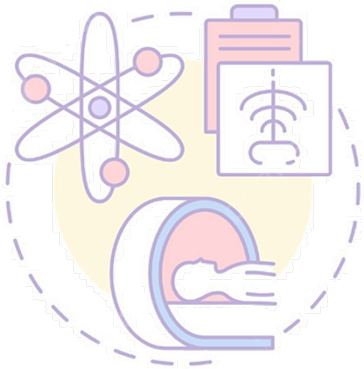
Radiation Protection

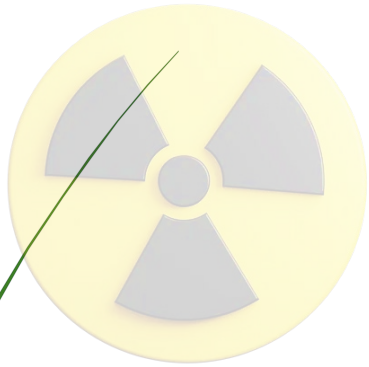
The Second Stage

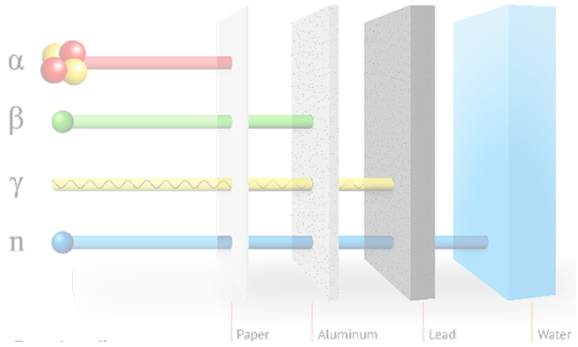
First Semester –Lectures No. 7,8,9

2025 - 2026









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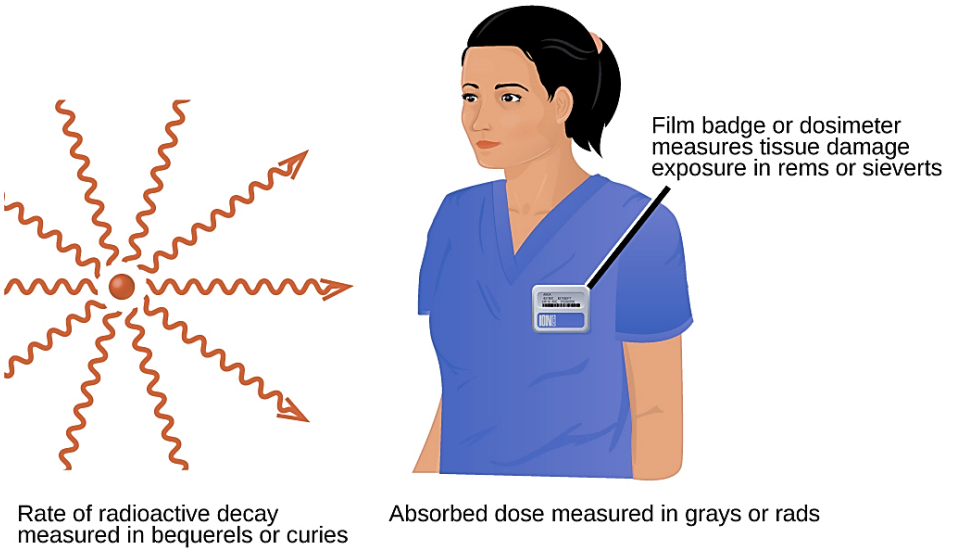
Radiation Hazards
Radiation Measurements
Devices & Detectors

OUTLINES:

- ❖ **Radiation Hazard Evaluation Devices.**
  - ✓ **Area Monitoring Devices.**
    - ➢ **Personnel Monitoring Devices.**

Personal Dosemeter

A radiation dosimeter is a device that measures dose uptake of external ionizing radiation. It is worn by the person being monitored when used as a personal dosimeter and is a record of the radiation dose received.



Ionizing radiation damage to the human body is cumulative, and is **related** to the total dose received, for which the SI unit is the Sievert "*Sv*" (or Rem "*1 Sv =100 Rem*"). Workers in radiotherapy and Radiology units (doctors, physicists, operators, technologists, nurses), nuclear power plant workers, and other people in situations that involve handling radionuclides are often required to **wear dosimeters so** a record of occupational exposure can be made to monitoring how much of doses exposure. Such devices are known as "legal dosimeters مقاييس الجرعات القانونية " if approved for use in recording personnel doses for regulatory purposes.

Dosimeters are typically **worn** "ارتداء"on the **outside of clothing**, a "whole body" dosimeter is worn on the chest or torso to **represent dose to the whole body**. This location monitors exposure of most vital organs and represents the bulk of body mass. **Additional dosimeters** can be **worn** to assess dose to **extremities** or in radiation fields that vary considerably depending on **orientation of the body to the source**.