



ST. ANN'S COLLEGE FOR WOMEN

A Catholic Christian Minority Institution Affiliated to Acharya Nagarjuna University,
Recognized the College Under Section 2(f) of the UGC Act, 1956 - New Delhi.

AMARAYATHI ROAD, GORANTLA, GUNTUR - 522 034, A.P.

DEPARTMENT OF CHEMISTRY CERTIFICATE COURSE

St. Ann's College for Women U.G Chemistry Dept CERTIFICATE COURSE 22-23

NOTICE

All the IV semester students of II B.Sc (MPC) Chemistry are informed that ADD ON COURSE on "Radioisotopes- Uses" classes for 30 hours has been scheduled to commence from 19th to 24th July 2023. The classes are conducted in Chemistry Lab of Annamma block. So, the interested students are informed to enroll their names on or before 15th July 2023.

Yours Faithfully,

To
All teaching staff of chemistry
Department for circulation
Department notice board

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St. Ann's College for Women
GORANTLA, GUNTUR-522 034



Head of Dept. of Chemistry
St. Ann's College for Women
GORANTLA, GUNTUR-522034.

Syllabus

1. Introduction to Radioactive elements, tracer elements, Isotops.
2. Radio active disintegration – alpha, beta, Gama emissions and stable nuclei
3. Electro Magnetic radiations – UV, IR, NMR, ESR ect..
4. Instrumentation
5. Applications of radio isotopes in industry.
6. Applications of radio isotopes in medicine
7. Applications of radio isotopes in agriculture.

Electromagnetic Radiations:

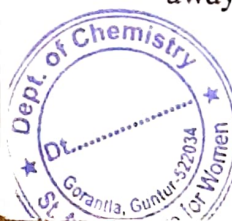
Diagnostic radiopharmaceuticals

Every organ in our bodies acts differently from a chemical point of view. Doctors and chemists have identified a number of chemicals which are absorbed by specific organs. The thyroid, for example, takes up iodine, whilst the brain consumes quantities of glucose. With this knowledge, radiopharmacists are able to attach various radioisotopes to biologically active substances. Once a radioactive form of one of these substances enters the body, it is incorporated into the normal biological processes and excreted in the usual ways.

Diagnostic radiopharmaceuticals can be used to examine blood flow to the brain, functioning of the liver, lungs, heart, or kidneys, to assess bone growth, and to confirm other diagnostic procedures. Another important use is to predict the effects of surgery and assess changes since treatment.

The amount of the radiopharmaceutical given to a patient is just sufficient to obtain the required information before its decay. The radiation dose received is medically insignificant. The patient experiences no discomfort during the test and after a short time there is no trace that the test was ever done. The non-invasive nature of this technology, together with the ability to observe an organ functioning from outside the body, makes this technique a powerful diagnostic tool.

A radioisotope used for diagnosis must emit gamma rays of sufficient energy to escape from the body and it must have a half-life short enough for it to decay away soon after imaging is completed.



Bm
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Dob
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Practical's Knowledge – Visit to diagnostic centres

- **Visit to diagnostic centres**


1. Thyroid Scam – Use of Iodine
2. Tracer Elements used in detection of disease – Technicians 99

- **Visit to fertilisers store**

1. Isotopes Used in Agricultural fertilisers.
2. Use of Agriculture radioactive Isotopes – Pesticides
3. Radio Active traces from soil for plants uptake – Calcium

- **Practical Industrial Application –**

1. Pipe line leak location sodium24


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