PERIYAR UNIVERSITY

SALEM – 636 011.

PERIYAR INSTITUTE OF DISTANCE EDUCATION [PRIDE]

CERTIFICATE IN RADIO IMAGE TECHNOLOGY
(1Years)

SYLLABUS / REGULATIONS

[Candidates admitted from 2007-2008 onwards]
Certificate in Radio Image Technology

Mode: Through Distance Education and as an off-campus Programme

Eligibility: A Pass in the plus 2 examination Preference will be given to those who have chosen Science subjects.

Duration: One Year under Non-Semesters Pattern

Medium of Introduction: English Only

Course of Study:

First Year

Paper – 01 Biomaterials

Paper – 02 Biomedical Instrumentation – I

Paper – 03 Biomedical Instrumentation - II

Paper – 04 Practical - I

Scheme of Examinations:        Duration  Max. Marks

1. Biomaterials                3 hrs       100

2. Biomedical Instrumentation – I  3 hrs       100

3. Biomedical Instrumentation -II 3 hrs       100

4. Practical - I                3 hrs       100

Classification of successful candidates, Candidates who obtain 75% of marks, and above in aggregate will be placed in First class with Distinction.
Candidates who secure not less than 60% of the aggregate will be placed in First Class. Candidates who secure between 50% and 59% in aggregate will be placed in second class. Candidates who secure less than 40% and 49% in aggregate will be placed in Third Class.

**Question Paper Pattern with out Practical**

**Time: 3 Hours**

**Max. Marks: 100**

Section – A: 5x8 = 40 Marks

Answer any five Questions

Each answer not to exceed 2 pages.

Section – B: 6x10: 60 Marks

Answer all Questions

Each answer not to exceed 4 pages.
PAPER – I: BIO MATERIALS

UNIT - I

Carbohydrates: Monosaccharide – definition – classification, structure, properties and biological significance Polysaccharides – Types and biological importance.

UNIT - II

Vitamins classification, occurrence, deficiency symptoms, biochemical functions of fat soluble and water soluble vitamins

UNIT - III

Basic rules of a Microbiology laboratory - Basic requirement of Microbiology laboratory – Basic Principles, operating mechanism and application of autoclave, hot air oven, laminar air flow and pH meter.

UNIT - IV

Biotechnology – definition and history Enzyme biotechnology – Enzyme production from microbes, applications – Enzyme immobilization.

UNIT - V

NMR Spectroscopy: Principle – Theory and Experiment, MR parameters, Nuclear over Hauser effect NMR application in chemistry, Bio chemistry and Bio physics – NMR in medicine molecular modeling optimizing the model.
**Books of Study:**


5. Prakash. M and Arora C.K. Laboratory instrumentation Anmol Publication Pvt, Ltd.

UNIT – I
TRANSDUCERS:


UNIT – II
BIOELECTRIC POTENTIALS

Sources of bioelectric potentials- Resting and acting potentials – Propagation of action potentials – Bioelectric potentials

UNIT – III
ELECTRODES:

UNIT – IV
CARDIOVASCULAR MEASUREMENTS:


UNIT – V
BIO SENSORS:


References: 1. Biomedical Instrumentation Dr. M. Arumugam
UNIT – I

RESPIRATORY SYSTEM:


UNIT - II

ULTRASONIC IMAGING:


UNIT – III

SCANNERS:

Biomedical application – Computer analysis of the Electrocardiogram – Computerized axial tomography (CAT) scanners.

UNIT – IV

MAGNETIC IMAGING:


UNIT – V

Electrophoreoses:

Basic Principles and their application - Agarose gel electrophoreoses – SDS PAGE – Blotting – southern and western – Auto radiography
**Books for study:**


Paper – III: Practical – I

1. Blood Grouping
2. Blood Pressure Measurement
3. Blood Analysis: Sugar, Urea, Uric acid, Creatinine, Protein, Cholesterol
4. Estimation of Hemoglobin in Blood
5. Determination RBC, WBC, ESR, PCV
6. Urinary Calculai Analysis