

# Swami Ramanand Teerth Marathwada University, Nanded



**B. O. S. In Chemistry**

**B. Sc. Second Year (Dyes and Drugs)**

**Revised Syllabus**

**In force from June - 2009**

**B. Sc. Second Year  
DYES AND DRUGS**

<b>Paper</b>	<b>Course No.</b>	<b>Course</b>	<b>Periods/week</b>	<b>Total Periods</b>	<b>Marks</b>
IV	CHDD-201	Introduction to Dyes	3	80	100
V	CHDD-202	Introduction to Drugs	3	80	100
VI	CHDD-203	Laboratory Course-II	4	120	100
VII	CHDD-204	Laboratory Course-III	4	120	100

**B.Sc. Iyear**  
**DYES AND DRUGS**  
**Paper: IV (CHDD-201)**  
**Study and synthesis of dyes**

**Marks: 100**

**Periods: 80**

**UNIT I**

**I. Azo-Dyes – Synthesis and applications :**

**10 periods**

- |                          |                       |                      |
|--------------------------|-----------------------|----------------------|
| (i) Methyl orange        | (ii) Methyl red       | (iii) Orange I       |
| (iv) Orange II           | (v) Orange IV         | (vi) Fast red A      |
| (vii) Metanil yellow     | (viii) Aniline yellow | (ix) Butter yellow   |
| (x) Congo red            | (xi) Diamond black F  | (xii) Chromotrope 2B |
| (xiii) Erichrome black T |                       |                      |

**II. Dyeing and fastness properties of azo dyes**

**10 periods**

- i. General consideration
- ii. Dyeing and fastness properties of
  - a. Azodyes for wool
  - b. Azodyes for silk
  - c. Azodyes for leather
  - d. Direct cotton dyes
  - e. Acid colours on cotton

**UNIT II**

**I Azoic Dyes :**

**14 periods**

Introduction,. Chemical constitution of naphthols, preparation of Naphthols, Naphthols for yellow shade, azoic shades, steps involved in azoic dyeing, application of azoic dyes on fibres other than cotton (wool, silk, cellulose, acetate) fastness properties of azoic shades top light, chlorine,, rubbing, alkali, azoic colours in printing, printing composition. Types of azoic colours in printing.

**II. Heterocyclic Dyes :**

**6 periods**

Introduction, Classification, Synthesis and applications of

- |                    |                   |                    |
|--------------------|-------------------|--------------------|
| 1. Indophenol blue | 2. Phenylene blue | 3. Methylene blue  |
| 1. Primuline       | 5. Gallocyanine   | 6. Acridine yellow |
| 7. Sensitol red    | 8. Quinoline blue | 9. Sensitol red    |
| 10. Ethyl Red      | 11. Safranin T.   |                    |

## UNIT III

### I. Diphenyl and triphenyl methane dyes :

12 periods

1. Diphenyl methane dyes : Introduction, synthesis and application of Auramine O and Auramine G
2. Triphenyl methane dyes : Introduction. Classification, General properties, constitution of Triphenyl methane dyes (w.r.t. pararosaniline)
3. Synthesis and applications of following triphenyl methane dyes
  - a. Malachite green
  - b. Rosaniline
  - c. Pararosanine
  - d. aniline blue
  - e. Methyl violet
  - f. crystal violet
4. Phenolphthalein – Synthesis, properties and application.

### II. Anthraquinone Dyes :

8 periods

Introduction, classification, synthesis and applications of dyes

1. Alizarin
2. Alizarin Red S
3. Alizarin orange
4. Alizarin blue
5. Alizarin cyanine green
6. Indanthrene blue
7. Flavanthrene
8. Pyranthrene

## UNIT IV

### I. Xanthene Dyes

8 periods

Introduction, General properties synthesis and applications of

1. Fluorescein
2. Eosin
3. Erythrosine
4. Rhodamine G
5. Rhodamine B
6. Pyronine G.

### II. Pigments

12 periods

- a. Introduction
- b. Use of synthetic organic pigments
- c. Requirements of organic pigments
- d. Types of pigments
- e. Methods of pigment printing
- f. Styles of printing
- g. Pigment printing, advantages and disadvantages of pigment application
- h. Chemical nature of pigments
- i. Binders and fixers, thickeners.

**B.Sc. II year**  
**DYES AND DRUGS**  
**Paper: V (CHDD-202)**

**Study and synthesis of Drugs, their applications and physiological effects**

**Marks: 100**

**Periods: 80**

**UNIT I**

**I Study of analgesics, antipyretics and anti inflammatories** **10 periods**

Introduction, classification, Mechanism of action of an analgesics and antipyretics, synthesis and applications of Acetaniline, Novalgin, Phenacetin, Paracetamol, Aspirin, salol, Irgaphyrin, Ibuprofen, Oxyphenyl butazone

**II. Study of sedatives and hypnotics** **10 periods**

Introduction, Classification, synthesis and applications of tchlorovynyl, chloral, Paraldehyde, Sulphonal, Novonal, trichloroethyl urethene, phenobarbitone, Pentobarbitone

**UNIT II**

**I. Sulphonamides** **10 periods**

Introduction, discovery, classification, mechanism of action of sulpha drug, Synthesis and applications of following sulphonamides

Sulphanilamide, Sulphapyridine, sulphadiazine, Sulphamerazine, Sulphamezathine, Sulphamethazazole, Succinyl Sulphathiazole, Sulphaceamide, suphamylon

**II. Antimalerials** **10 periods**

1. Introduction, historical background, Classification
2. Pathogenecity and Chemotherapy of malarial parasite
3. Study of the following antimalerials with uses : Camaquine, mepacrine, azacrine, paludrine

**UNIT III**

**I. Anaesthetics** **10 periods**

Introduction, Classification, study of ether, ethylen divinylether, methyl-n-propyl ether, Cyclopropane, Nitrous oxide, Chloroform, fluoethane, trichloroethylene, viadril

Local anaesthetics -  $\alpha$  - Eucatine,  $\beta$  - Eucaine, orthocaine, Benzocaine, procaine

**II. Antiseptics** **10 periods**

Introduction, standardization of disinfectant (Phenol coefficient) classification

Study of following antispetics, alcohols, formaldehyde, Urotropine, metal containing antiseptics, chlorine, chloramines (ChloramineT, Dichloroamine T, Halazone, Chloroazodin) Iodoform, Vioform, Thymol, Dettol, Nitrofurazone

**UNIT IV**

**I. Antibiotics** **20 periods**

Introduction, history of discovery, classification., study of following antibiotics with an introduction, production, isolation, properties, clinical uses and mechanism of action of penicillin, streptomycin, chloramphicol, tetracycline

Types of penicillin, structure, activity, relationship of chlormphicol and penicillin

**B.Sc. Ilyear**  
**DYES AND DRUGS**  
**Paper: VI**  
**LABORATORY COURSE III (CHDD-203)**

**Marks: 100**

**Periods: 120**

(Any sixteen experiments are to be covered)

**1. Preparation of dye intermediates**

- |                       |                      |                        |
|-----------------------|----------------------|------------------------|
| a. Anthraquinone      | b. Aniline           | c. P-Bromo acetanalide |
| d. Succinic anhydride | e. Sulphanillic acid | f. P-Benzoquinone      |

**2. Preparation of dyes :**

- |                |                 |                     |
|----------------|-----------------|---------------------|
| a. Fluorescein | b. Eosin        | c. Methyl orange II |
| d. Congo red   | e. Fast green O |                     |

**3. Estimation of following Aryl amines by using  $\text{NaNO}_2$  solution**

- |            |                   |                     |
|------------|-------------------|---------------------|
| a. Aniline | b. P-Nitroaniline | c. P-chloro aniline |
|------------|-------------------|---------------------|

**4. Dyeing methods**

- a. Direct dyeing of wool and silk with Orange II
- b. Direct dyeing of wool and silk with Eosin
- c. Direct dyeing of wool and silk with Malachite green
- d. Direct dyeing of wool and silk with Crystal violet
- e. Direct dyeing of cotton with congo red
- f. Dyeing of cotton with Malachite green by Mordant dyeing method
- g. Acid dyeing or wool with Orange II
- h. Dyeing of cotton by vat dyeing method

**B.Sc. Iyear**  
**DYES AND DRUGS**  
**Paper: VII**  
**LABORATORY COURSE IV (CHDD-204)**

**Marks: 100**

**Periods: 120**

(Any sixteen experiments are to be covered)

**1. Preparation of Drug Intermediates**

- a. Pyrazolone                      b. Hydantoin                      c. Thiazole

**2. Preparation of Drugs**

- a. Antipyrine                      b. Methyl salicylate                      c. sulphonamide  
d. Aspirin                      e. Benzocaine

**3. Assay of Drugs**

- a. Aspirin                      b. Sulphonamide                      C. Paracetamol

**4. Tests for Identity and purity of Drugs**

Analgin, Aspirin, Vitamin C, Pencillin G, Chlorocresol, Chloroform, Chloroquine phosphate, Cresol, Erythromycin, Isoniazide, sulphadiazine

**5. Limit tests for chloride and sulphate for three drug samples**

**6. Qualitative Tests**

- a. Ephidrine                      b. Belladonna                      c. Nicotine  
d. Glucose                      e. sucrose                      f. Starch  
g. Protein