D.B.F. Dayanand College of Arts and Science, Solapur.

Affiliated to

सोलापूर विद्यापीठ

।। विद्यया संपन्नता ।।

NAAC Accredited-2015

'B' Grade (CGPA-2.62)

Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

Name of Faculty: Science & Technology

(Choice Based Credit System)

Syllabus: Certificate course in Textile Chemistry

Name of Course: B.Sc.-III (Sem.-V) / M.Sc.-II (Sem.-III) Chemistry

(Syllabus to be implemented from w.e.f. June 2021)

SYLLABUS FOR
B.Sc.-III (Sem.-V) / M.Sc.-II (Sem.-III) Chemistry
Certificate Course in Textile Chemistry

Structure of the Course:

- Certificate Course in Textile Chemistry will be implemented for **B.Sc.-III (Sem.-V) / M.Sc.-II (Sem.-III) Chemistry.**
- There will be one theory paper of **50 marks** and Practical of **50 marks**.
- The theory paper has **40 marks** for university external examination and **10 marks** for internal examination.
- At the end of Semester V, the practical examination will be conducted. The weightage of practical is of **30 marks** for university external practical examination and **20 marks** for project and oral internal examination.

Semester	**Paper**	**Total Lectures**	**Examination**			**Total Credits**
			Univ. Exam.	**Internal Exam.**	**Total Marks**	
B.Sc.-III (Sem.-V) / M.Sc.-II (Sem.-III)	Theory	30	40	10	50	2
	Practical	15	30	00	30	1
	Project & Oral	15	00	20	20	1
Total		**60**	**70**	**30**	**100**	**4**

- Duration of practical examination is of **one day**. There will be two practical's each of **3.00 hr** duration.
- Theory paper has **10 marks** for internal examination. There will be **05 marks** for unit test and **05 marks** for home assignment.
- **The Project may be on laboratory works/Field work/Industrial visit for 20 marks. Its report should be submitted at the time of university practical examination for 01 credit.**
- **If the course is University Affiliated, then the certificate of completion of course will be issued by University.**
- **If the course is College Affiliated, then the certificate of completion of course will be issued by college and submitted to university for fulfilment of curriculum.**

Syllabus for Theory Paper

(Total Credits: 02 and Contact Hrs. 30)

1. Textile Fiber (Contact hrs:05)

- **1.1** Classification of Fibers, Physical & Chemical properties of Cotton, Wool, Jute and silk.
- **1.2** Method of manufacturing, physical, chemical, properties and uses of man made fibers, regenerated fibers such as viscose rayon, acetate rayon
- **1.3** Method of manufacturing, Physical, Chemical properties and uses of man made fibers, Polyester, Nylon 66 Polyacrylonitric Polyolefins

2. Sizing (Contact hrs:05)

- **2.1** Object of Sizing, Sizing ingredients and their functions.
- **2.2** Chemistry of Sizing ingredients.
- **2.3** Physical and chemical properties of starch, softener, synthetic adhesives.
- **2.4** Testing of starches, softeners.
- **2.5** Sizing of synthetic warp yarn

3. Bleaching (Contact hrs:05)

- **3.1** Studying of outline of the process of bleaching of cotton and synthetic materials.
- **3.2** Studying of process like sizing, desizing, scouring, bleaching and souring (Batch and Continuous process)

4. Dyeing (Contact hrs:05)

- **4.1** Study of dyeing of cellulosic materials with dyes like direct, vat sulphur, reactive, soluble reactive, soluble vat, mineral khaki and aniline back.
- **4.2** Study of dyeing of synthetic fibers like polyester, nylon and acrylic with suitable class of dyes.
- **4.3** Brief description of machinery used for dyeing yarn and fabric machines like package dyeing jigger, winch, padding mangle and continouous dyeing tango

5. Printing (Contact hrs:05)

- **5.1** Study of printing cellulosic fabrics with dyes like direct, reactive vat, soluble vat, azoics and pigment colours
- **5.2** Study of direct discharge and resist style of printing
- **5.3** Brief study of flat bed screen printing machine, rotary screen printing machine and roller printing machine

6. Fining (Contact hrs:05)

- **6.1** Object and classification of finishing processes.
- **6.2** Finish applied on celliuosics and synthetic fabrics with reference to resin finishing, water proofing, soil release.
- **6.3** Study of water mangling starching, drying, stenering, calendaring, mercerization, shrink resisting treatment, optical brightening treatments.

Syllabus for Practical Paper

(Total Credits: 01 and Contact Hrs. 15)

- **Minimum 05 practicals of 3 hrs duration should be conducted.**

1. Identification of textile fibers.
2. Testing of Starches
3. Testing of oils and softeners.
4. Testing of Turkey Red oil.
5. Viscosity testing of different starches.
6. Bleaching of cellulosic with different bleaching agent.
7. Bleaching of Polyester with different bleaching agent.
8. Dyeing of cellulosic fabric with different classes of dyes like direct, vat, sulphur, indigosol, Azoic reactive etc.
9. Dyeing of synthetic fabrics with different classes of dyes like disperse, reactive, basic, acid, etc
10. Testing of colour fastness (washing, light and abrasion) for dyed fabrics and garments.
11. Testing of shrinkage of fabrics and garments.
12. Preparation of screen for printing.
13. Preparation of printing paste of different dyes.
14. Fixation of print with steaming method.
15. Other related practical

Reference Books:

1	Textile Fibers	-Dr. V. A. Shenai
2	Sizing	-D. B. Ajgaonkar
3	Bleaching	-Dr. V. A Shenai
4	Dyeing	-Dr. V. A. Shenai
5	Printing	-Dr. V. A. Shenai
6	An Introduction of Finishing	-J.T.Marsh
7	Finishing	-Dr. V. A. Shenai
8	Bleaching	-E. R. Trotman
9	Textile Science	-J. T. Marsh
10	Fiber Science & Technology	-S Jayprakash, R. Gopalkrishna
11	Evaluation & Textile Chemicals	-Dr. V. A. Shenai & R. H. Mehera
12	Practical Cotton Finishing	-J. H. Edge
13	Identification of Organic Compound & Textile Fibers- Semi Micro Method	-J. G. Vashi

Question Paper Nature
Certificate course in Textile chemistry

Time: 2 hr **Total Marks: 40**

Q. 1. Choose the **most correct** alternative for the following and rewrite the sentence. 08

1) ----------
   a) b) c) d)
2)
3)
4)
5)
6)
7)
8)

Q. 2. Answer ***any four*** of the followings. 08

i)
ii)
iii)
iv)
v)

Q. 3. Answer ***any two*** of the followings. 08

i)
ii)
iii)

Q. 4. Write note on ***any two*** of the following. 08

i)
ii)
iii)

Q. 5. Answer ***any one*** of the followings. 08

i)
ii)