Akole Taluka Education Society's

# Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole

Tal.Akole, Dist.Ahmednagar - 422601 (Maharashtra)

3rd Cycle

# Assessment and Accreditation

## Criterion I: Curricular Aspects

**KI: 1.2 Academic Flexibility**

**$Q_nM$- 1.2.1 Number of Certificate/ Value added courses offered and online courses of MOOCs, SWAYAM, NPTEL etc.**

**2021-22 to 2017-18**

साहसे श्री: प्रतिवसति ।
I.D.No.PU/AN/ASC/018/1974. HSC/1176/July 1976 Dt. 1.7.76 H.S.C.No.J-12.01.001
Akole Taluka Education Society's
AGASTI ARTS, COMMERCE &
DADASAHEB RUPWATE SCIENCE COLLEGE, AKOLE
A/p. Tal. Akole, Dist. Ahmednagar, Pin - 422 601 (Maharashtra)
AIS,HE.Code : C-41748
I Savitribai Phule Pune University Best College Award - 2007
I NAAC Aaccredited 'A' Grade
Dr. Bhaskar Shelke
Principal
M.A. M.Phil., Ph.D., D.Litt.
Mob.: 9890686521, Ph. 02424 - 221248
E-mail : shelke_bhaskar@yahoo.com

## DECLARATION

This is to declare that the information, reports, true copies of the supporting documents, numerical data, etc. submitted / presented in this file is verified by **Internal Quality Assurance Cell (IQAC)** and is correct as per the records. This declaration is for the purpose of NAAC accreditation of Higher Education Institution (HEI) for 3rd Cycle period 2017-18 to 2021-22.

Date: 30-06-2023

Place: Akole

Co-ordinator
Internal Quality Assurance Cell
Arts,Commerce & Dadasaheb
Rupwate Science College,Akole
Dist.Ahmednagar (422601)

EST.1974
TAL-AKOLE
DISTRICT
AHMEDNAGAR
422 601
AKOLE

PRINCIPAL
Agasti Arts,Commerce & Dadasaheb Rupwate
Science College, Akole - 422601,Dist.A'Nagar

Ph : (Off). 02424 - 221248, 222703, 221655 Fax : 02424 - 221248 E-mail : acsakole2005@gmail.com Visit us at - www.agasticollege.com

# Brochures of Certificate/ Value added programs

(Activity Report, Syllabus, Objectives and Outcomes etc.)

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## 1. Patrakarita (Hindi)

**Akole Taluka Education Society's**

**Agasti Arts, Commerce & Dadasaheb Rupwate Science College Akole**

**Tal- Akole, Dist- Ahmednagar 422601**

**Department of : Hindi**

**Activity Report :- 2021-22**

| | |
|---|---|
| **Activity Name** | Online Certificate course |
| **Date** | 01/02/2022 to 31/03/2022 |
| **Organized by** | हिंदी विभाग, अगस्ति महाविद्यालय, अकोले |
| **Activity for** | T.Y.B.A. Hindi Special Student |
| **Type of Activity** | 4 Certificate Course |
| **Objectives** | १. पत्रकारिता क्षेत्राबद्दल विद्यार्थांना माहिती देणे.<br>२. हिंदी पत्रकारितेची माहिती देणे.<br>३. पत्रकारिता कौशल्य विकसित करणे. |
| **Brief information about activity** | विषय : हिंदी पत्रकारिता कोर्स<br>समन्वयक : प्रा. जी.बी. इदे |
| **Outcomes** | १. विद्यार्थांना पत्रकारितेची चांगली माहिती मिळाली.<br>२. विद्यार्थांना पत्रकारितेचे महत्व व क्षेत्र माहित झाले. |
| **No. of Students** | 23 |
| **Analysis of Feedback** | ---- |
| **Report** | --- |
| **Attachments** | Photo, Attendance of Student & Teachers, News/ News Cutting, Feedback Form. |
| **Other Information** | ---- |

Head of Department/Activity,
प्रा.डॉ.गायकवाड एस.एस.
हिंदी विभाग प्रमुख
अगस्ति कला,वाणिज्य व दादासाहेब रुपवते
विज्ञान महाविद्यालय,अकोले,जि.अहमदनगर

Principal
अगस्ति कला, वाणिज्य व दादासाहेब रुपवते
विज्ञान महाविद्यालय, अकोले, जि.अहमदनगर

# अगस्ती कला वाणिज्य व दादासाहेब रूपवते विज्ञान महाविद्यालय अकोले,

## हिंदी विभाग (२०२१ – २०२२)

### पाठ्यक्रम – हिंदी पत्रकारिता

**VALUE ADDED COURSE/ Online Certificate Course**

४ क्रमांक (क्रेडिट)

कक्षा : टी.वाय.बी.ए. अयन – VI

कुल तासिका : ४० कुल अंक : ५०

पाठ्यक्रम के उद्देश:

१. पत्रकारिता क्षेत्र से छात्रो को अवगत कराना |

२. हिंदी पत्रकारिता का परिचय कराना |

३. पत्रकारिता कौशल विकसित करना |

४. रोजगारपरक दृष्टी का विकास करना |

इकाई - अ) पाठ्यविषय (१५ तासिका)

१) पत्रकारिता का स्वरूप ,परिभाषा

२) हिंदी पत्रकारिता का उदभव और विकास |

३) समाचार संकलन तथा लेखन के मुख्य आयाम|

इकाई - ब) (१५ तासिका)

१) संपादन कला: शिर्षकीकरण,पृष्ठविन्यास, मुद्रण, समाचार पत्र की प्रस्तुती प्रक्रिया|

२) पत्रकारिता लेखन – समाचार, फीचर, संपादकीय, अग्रलेख, रिपोर्टिंग, साक्षात्कार, समिक्षा |

## 2. Agricultural Marketing in India (Economics)

Akole Taluka Education Society's
Agasti Arts, Commerce and Dadasaheb Rupwate Science College
Akole, Tal - Akole, Dist - Ahmednagar, (422601)

**Department of Economics**

Activity Report:- 2021-22

| | |
|---|---|
| Activity Name | Certificate Course in Agricultural Market in India |
| Date | 01/02/2022 to 30/03/2022 |
| Activity for | UG Students |
| Objectives | To introduce students to the agriculture market in India.<br>To enable students to the history of agricultural diversity of india |
| Brief information about activity | The course was designed for third year bachelor of arts students. It was conducted during Feb.2022 to March.2022.The course received a huge response from the students. |
| Outcome | The students are benefited by various concept of agricultural market and improve their knowledge about agricultural market in India. |
| No of students | 26 |
| Attachment /Reports | Syllabus, list of the students, attendance, question paper, certificate. |

Head of department
HEAD
DEPARTMENT OF ECONOMICS
Agasti Arts,Commerce & Dadasaheb
Rupwate Science College Akole.
Tal-Akole,Dist-A'Nagar

EST. 1974 TAL. AKOLE DISTRICT AHEDNAGAR 422601

Principal
PRINCIPAL
AGASTI ARTS, COMM. & DADASAHEB
RUPWATE SCIENCE COLLEGE, AKOLE
TAL AKOLE, DIST A.NAGAR - 422 60

साहमे श्री प्रतिवसति |
Akole Taluka Education Society's
Agasti Arts, Commerce and Dadasaheb Rupwate Science College Akole,
Tal- Akole, Dist. - Ahmednagar 422601

## Agricultural Marketing in India

### Syllabus

The primary purpose of this course is to help student develop analytical tools thinking about agricultural marketing. The course covers the principles of agricultural marketing including consumers demand and supply. The course will also provide an overview of the role of agriculture in Liberia and some world economies. Students in this course may complete a market analysis to show that they understand how managers firms, wholesalers, retailer's transporters, packagers and storage, etc. function in the agricultural marketing system.

**Course Objective**

1. At the end of this course the students will be able to define agricultural marketing.
2. Students will be able to identify the problems of agricultural marketing and find Solutions to solve the problems.
3. Students will be able to explain the principles of demand and supply understanding the relationship in the agricultural marketing system.
4. Student will complete a market analysis to understand the functions of all of the actors with in a marketing food distribution channel.

**Method of Teaching**

Classroom lectures, You Tue lectures Group Discussion, Teacher Driven Power Point Presentations

At the end of the course the students will be evaluated faced on the following.

| | | |
|---|---|---|
| A | Attendance | 10 |
| B | Class participation | 10 |
| E | Final Exams | 30 |
| **Total** | | **50** |

| Unit No | Topic | Lecture |
|---|---|---|
| 1 | **Principles of Marketing**<br>1.1 Definition of market and marketing<br>1.2Evolution of marketing in India<br>1.3 Scope, importance and need of agricultural marketing and markets<br>1.4 Classification of markets<br>1.5 Difference of agricultural marketing with other Commodities marketing. | 10 |
| 2 | **Market functionaries**<br>2.1 From Procedure to consumer<br>2.2 Whole seller, Retailer, Broker, Commission agent, Speculators Processors<br>2.3 Financing institutions, need and importance of Intermediaries. | 10 |
| 3 | **Agriculture Price Policies**<br>3.1 Demand and Supply of Agricultural products.<br>3.2 Demand for farm products<br>3.3 Special and temporal distribution of demand for agriculture products<br>3.4 Factors affecting the demand of farm products, supply of different farm commodities<br>3.5 Factors affecting the farm products supply.<br>3.6 Effect of demand and supply of market price. | 10 |

**Basic Reading List**


1. Agricultural Economics, R.k. Lekhi, Joginder Singh, Kalyani Publications.
2. Agriculture Administration in India, Hoshiar Singh, Printwell Publishere.
3. Institutional Credit and Agricultural Growth, S.R.Mehrotra, Printwell Publisher.
4. Agricultural Statics In India, P.C. Bansil, Oxford &IBN Publishing.co
5. भारतीय अर्थव्यवस्था, देसाई, भालेराव, निराली प्रकाशन.
6. भारतीय अर्थव्यवस्था, दत्त आणि सुंदरम, एस.चन्द.
7. कृषी अर्थशास्त्र, डॉ. वसुधा पुरोहित, विद्या बुक्स पब्लिकेशन.
8. शेतीचे अर्थशास्त्र, डॉ. गंगाधर वि.कायंदे-पाटील, चैतन्य पब्लिकेशन, नाशिक.

## 3. Material Characterization Techniques (Physics)

Akole Taluka Education Society's
Agasti Arts, Commerce and Dadasaheb Rupwate Science College Akole.
Dist. Ahmednagar (422601)

**DEPARTMENT OF PHYSICS**

**Activity Report**
**of**
**Certificate Course in Material Characterization Techniques**

| | |
|---|---|
| **Activity Name** | Certificate Course in Material characterization techniques |
| **Date** | 05/01/2022 to 25/03/2022 |
| **Organized by** | Department of Physics<br>Co-Ordinator: Prof. Dipak D. Deshmukh |
| **Activity for** | T.Y.B.Sc. (Physics) Students |
| **Type of Activity** | Lectures and Analysis of Characterization Data |
| **Objectives** | Student should come across the material characterization techniques like X-ray diffraction and UV-Visible spectroscopy |
| **Brief information about Activity** | This course is conducted for student to get the knowledge of different characterization techniques for material characterization. |
| **Outcomes** | Student become capable for analyzing the material. They can handle regarding software |
| **No. of students Participated** | 12 |
| **No. of Teachers Involved** | 02 |
| **Report** | This course is of forty lectures conducted by the lecturer Prof. Chavan S.S. and Prof. Deshmukh D.D. in the duration of 05/01/2022 to 25/03/2022 successfully. |
| **Attachments** | Proposal for sanctioning of the course, Syllabus, Timetable, List of the Teacher, CDC permission letter, Students attendance, Output |

Deshmukh
Activity Co-Ordinator

(Dr. Ashok Datir)
Professor and Head
Department of Physics
Agasti Arts, Commerce and Dadasaheb
Rupwate Science College,
Akole- 422601, Dist.Ahmednagar

(Dr. Bhaskar Shelke)
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AGASTI ARTS, COMM. & DADASAHEB
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Dist. Ahmednagar (422601)

**DEPARTMENT OF PHYSICS**

## Certificate Course in Material Characterization Techniques

### Document Index



(Prof. D. D. Deshmukh)
Course Co-Ordinator

(Dr. Ashok Datir)
Professor and Head
Department of Physics
Agasti Arts, Commerce and Dadasaheb Rupwate Science College,
Akole- 422601, Dist. Ahmednagar

Dept. of Physics

(3)

*Akole Taluka Education Society's*

**Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole.**
**Tal-Akole, Dist-Ahmednagar, 422601**

**DEARTMENT OF PHYSICS**

*Certificate Course Syllabus*

**Material Characterization Techniques**

***CHAPTER 1:* THE DETERMINATION OF CRYSTAL STRUCTURE BY X- RAY DIFFRACTION METHOD** ***(26 Lectures)***

1.1 Introduction.
1.2 Preliminary treatment of data.
1.3 Indexing patterns of cubic crystals.
1.4 Indexing patterns of noncubic crystals (graphical methods).
1.5 Indexing patterns of noncubic crystals (analytical methods).
1.6 The effect of cell distortion on the powder pattern.
1.7 Determination of the number of atoms in a unit cell.
1.8 Determination of atom positions.
1.9 Example of structure determination.

***CHAPTER 2:* UV-VISIBLE SPECTROSCOPY** ***(14 Lectures)***

2.1 Introduction to UV-VISIBLE spectroscopy.
2.2 Study of Beer-Lambert law.
2.3 Determination of thickness of thin film.
2.4 Determination of band gap of material: direct band gap, Indirect band gap.

**Reference Books:**

- Elements of X-ray diffraction by B.D. Cullity.
- Perspectives of modern physics by Arthur Beiser
- Principle of instrumental analysis by Skoog, Holler, Nieman.

**Objectives:**

1. Students should come across the Material characterisation techniques X-ray diffraction and UV-visible spectroscopy.
2. They should analyse and understand the data of different materials.
3. They should get the idea and hands on in experimental data analysis.
4. Students learn the basic principles involved and technologies developed in the uses of X-ray and UV-visible spectroscopy.

**Course Outcomes:**

1. Students become capable for analysing the materials.
2. They can handle regarding software.
3. They can do their own research in material characterisation.

Dahmukh D.D.
(co-ordinator)

Professor and Head
Department of Physics
Agasti Arts, Commerce and Dadasaheb Rupwate Science College,
Akole- 422601,Dist.Ahmednagar

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## 4. Journalism (Politics)

Akole Taluka Education Society's

**Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole**

**Tal-Akole Dist – Ahmednagar 422601**

**Department of Political Science**

**Activity Report :-**

| | |
|---|---|
| **Activity Name** | **Certificate Course-Journalism** |
| **Date** | 12/02/2022 to24/02/2022 |
| **Organized by** | Department of Political Science |
| **Activity for** | Student |
| **Type of Activity** | Curricular Activity |
| **Objectives** | 1.Providing knowledge to students in some of the aspects related to Journalism.<br>2.Being able to choose students as an important path for their profession |
| **Brief information about activity** | In the Academic Year 2021-22 Political Science Department Arrange a **Certificate Course-Journalism** for student. |
| **Outcomes** | Being able to choose students an important path for their profession. |
| **No. of Students** | ~~35~~ 32 |
| **Report** | - |
| **Attachment** | Syllabus,Student Attendence,Question peper. |

Dr.Yasin G.Sayyad
**Head of Department / Activity**
HOD Dept.Of Political Science
Agasti Arts,Commerce & Dadasaheb Rupwate Sci.College Akole (A.Nagar)

AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE EST. 1974 TAL AKOLE DISTRICT AHMEDNAGAR 422601

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TAL AKOLE. DIST A.NAGAR - 422 601

**Savitribai Phule Pune University**

**Agasti Arts Commerce and Dadasaheb Rupwate Science College,Akole**

**Department Of Political Science**

**(2021-2022)**

***Journalism***

**(Certificate Course)** **4 Credit**

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***Objective:*** **(40 Periods)**

1.Providing knowledge to students in some of the aspects related to Journalism.

2.Being able to choose students as an important path for their profession.

**Unit 1: Journalism** **(10)**

a) Introduction to journalism
b) Types of journalism
c) Importance of journalism

**Unit 2: Journalism: Lows and Ethics** **(10)**

a) Laws relating to media

*i*) Indian Constitution

ii )Freedom of the press

iii) Right to Information

b) Ethical Values of journalism

i) Journalism ethics

ii) Commitment of journalist

**Unit 3: Journalism and related fields** **(10)**

a) Advertising: Requirements and Functions

b) Public Relations tools

c) Photo journalism: Different areas of photography

**Unit 4: Editing Appearance and skills** (10)

a) Newspaper editing: Importance of news

b) Magazine editing: Importance of news

c ) Typography: History

**References:**

1 ) Mass Communication and Journalism,Shekher Varma,Sonali Publications, New Delhi 2012

2) Mass Communication and journalisam,Yashwantrao Chavan Maharashtra Open University

3) पत्रकारितेची मुलतत्वे ,प्रभाकर पाध्ये,अनुवाद :प्र.ना.परांजपे /वसुधा परांजपे,मेहता पब्लिशिंग हाउस.पुणे १९१९१

4)पत्रकारिता और मिडिया,सुजाता वर्मा, विकास,कानपूर ,२०१६

5) जनसंवाद आणि जनमाध्यम :सैद्धांतिक संकलन,श्रीपाद भालचंद्र जोशी,संगेश,नागपूर २०००

6) बातमीदारी,सुनील माळी,राजहंस प्रकाशन,पुणे२०००

Prof. Kalead V. V.

AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE EST. 1974 TAL. AKOLE DISTRICT AHEDNAGAR 422601

Dr.Yasin G.Sayyad (M.A. M.Phil. Ph.D.) HOD, Dept. of Agasti Arts,Commerce & Dadasaheb Rupwate Sci.College Akole (Dist.Ahmednagar)

## 5. Spoken English & Grammar (English)

Akole Taluka Education Society's

Agasti Arts, Commerce &DadasahebRupwate Science College, Akole

### Department of English

Activity

| | |
|---|---|
| Department | English |
| Course | Certificate Course in Basic Grammar and Communication |
| Duration | 1 Feb. 2022 and 28 Feb. 2022 |
| Students | All Faculty |
| Participants | 120 |
| Objectives | 1) To teach basic grammar<br>2) To introduce students to the use of grammar<br>3) To teach communication skills |
| Outcomes | The students learnt the rules of grammar and its usage in daily life. They also became good in their communication skills. |

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TAL AKOLE, DIST. A.NAGAR - 422 601

Akole Taluka Education Society's

Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole

**Department of English**

Certificate Course in 'Basic Grammar and Communication Skills'

## Syllabus

**Course Objectives:**

1) Frame grammatically correct sentences in English.
2) Fluently speak in English in any situation.
3) Participate at higher levels in Group Discussions and meetings.
4) Able to present your thoughts more effectively.
5) Present yourself more confidently in personal interviews.

## Unit 1: Grammar Skills (20 clock hours)

**Objectives:**

1] To acquaint learner with the modern English Usage
2] To take remedial steps to correct the errors that enter the learner's Language System while Learning English as a foreign language.
3] To make them aware of the peculiarities English language.

1] Parts of speech and their uses
2] Vocabulary Building
3] Tenses and their Uses
4] Articles and their uses
5] Types of sentences and sentence patterns
6] Subject-Verb agreement
7] Usage of modal auxiliaries

## Unit 2: Communication Skills (20 clock hours)

**Objectives:**

1] To improve communicative competence of the students
2] To enable the students to converse in their life situations
3] To train the students to use English for the practical purposes.

1] Basic communication skills – 1. (Greeting, Introducing Oneself, Invitation, Making Request, Expressing Gratitude, Complimenting and Congratulating )
2] Basic communication skills – 2. (Expressing Sympathy, Apologizing, Asking for Information, Seeking Permission, Complaining and Expressing Regret)
3] Group Discussion
4] Interview Skills
5] Dialogue Practice

Head

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RUPWATE SCIENCE COLLEGE, AKOLE
TAL AKOLE, DIST. A.NAGAR - 422 601

## 6. Tally 9 with GST (IT)

Akole Taluka Education society's

**Agasti Arts commerce and Dadasaheb Rupwate Science college Akole**

Tal: Akole Dist; Ahmednagar 422601

**Department of - Computer Science and Management**

**Activity Report: 2021-22**

| | |
|---|---|
| **Activity Name** | **Certification Courses** |
| **Date** | **August 2021 (30 lectures )** |
| **Organized by** | **Computer Science and Mangement Department** |
| **Activity for** | **T. Y. BBA** |
| **Type of activity** | **Tally .9 with GST** |
| **Objectives** | This course is designed to impart knowledge regarding concepts of Financial Accounting Tally is an accounting package which is used for learning to maintain accounts. |
| **Brief information about activity** | **Basic Accounting**<br>Types of accounting,rules of debit & credit<br>**Company Information**<br>Select of company<br>Create company<br>Backup |
| **Outcomes** | **Achieving of Accounting knowledge –** |
| **No. of students** | **25** |
| **Report** | **25 pass/ 25 students** |
| **Attachments** | **Attendance of students** |

Head
Department of Computer Science
Agasti Arts,Comm.& Dadasaheb Rupwate Science College,Akole,Tal-Akole,Dist-Ahmednagar,422601

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AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE, AKOLE
TAL AKOLE, DIST. A.NAGAR - 422 601

# CERTIFICATE COURSE

## AGASTI ART 'S, COMMERCE AND DADASAHEB RUPWATE SCIENCE COLLEGE AKOLE, DIST. – AHMEDNAGAR

**1) Discipline:** Commerce

**2) Name of the Course:** Tally .9 with GST

**3) Nature of the Course:** Certificate Course

**4) Co-coordinating Department:** Computer Science And Management

**5) Course Objectives**

1. This course helps students to work with well-known accounting software i.e. Tally ERP.9
2. Student will learn to create company, enter accounting voucher entries including advance voucher entries, do reconcile bank statement, do accrual adjustments, and also print financial statements, etc. in Tally ERP.9 software
3. Accounting with Tally certificate course is not just theoretical program, but it also includes continuous practice, to make students ready with required skill for employability in the job market.

**6) Duration: 30 day**

(30)

**Syllabus**

| Sr. No. | Topic | No.of Lect. (in Hours) |
|---|---|---|
| 1 | Basic Accounting | 04 |
| 2 | Company information | 06 |
| 3 | Gateway of Tally Account info | 06 |
| 4 | Inventory info | 06 |
| 5 | Accounting Vouchers | 04 |
| 6 | Goods and Service Tax (GST) | 04 |

**Total Hours-30**

**Basic Accounting** — **04 Hrs**

- Type of account
- Rules of Debit or Credit
- Introduction of Tally
- Advantage of Tally

**Company information** — **06 Hrs**

- Select company
- Shut company
- Create company
- Alter
- Backup
- Restore

**Gateway of Tally Account info** — **06Hrs**

- Group
- Ledgers
- Voucher types

**Inventory info** — **06Hrs**

- Stock group
- Stock item
- Units of Measurement

**Accounting Vouchers** — **04 Hrs**

- Contra
- Payment
- Receipt
- Sale
- Purchase
- Journal

**GOODS AND SERVICE TAX (GST)** — **04 Hrs**

- Create Company and Activate GST in Company Level
- Creating Master and Set GST Rates
- Creating Tax Ledgers

## 7. Office Automation (IT)

Akole Taluka Education society's

**Agasti Arts commerce and Dadasaheb Rupwate Science college Akole**

Tal: Akole Dist; Ahmednagar 422601

**Department of - Computer Science and Management**

**Activity Report: 2021-22**

| | |
|---|---|
| **Activity Name** | **Certification Courses** |
| **Date** | **August 2021 (30 lectures )** |
| **Organized by** | **Computer Science and Management Department** |
| **Activity for** | **T. Y. BBA(CA)** |
| **Type of activity** | **Office Automation** |
| **Objectives** | **Automated repetitive jobs and reduces errors. ..**<br>**Creation of a centralized data access platform.** |
| **Brief information about activity** | **Introduction to Computers**<br>Objectives<br>Components of computer system<br>Concept H/W & S/W<br>Elements of word processing ,spreadsheet |
| **Outcomes** | **Cutting down on manual errors.**<br>**Shrinking the processing time for items.** |
| **No. of students** | **64** |
| **Report** | **64 pass/ 64 students** |
| **Attachments** | **Attendance of students** |

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TAL AKOLE DIST A.NAGAR - 422 601


# Certificate Course Name: Office Automation

**Syllabus**

| Chapter Name | Time Duration |
|---|---|
| 1. Introduction to computer | 6 |
| 2. Elements of Word Processing | 8 |
| 3. Spreadsheets | 8 |
| 4. Making small presentations | 8 |
| **Grand Total** | **30** |

## 1. INTRODUCTION TO COMPUTER

1.0 Introduction
1.1 Objectives
1.2 What is a Computer?
- 1.2.1 History of Computers
- 1.2.2 Characteristics Of Computer System
- 1.2.3 Basic Applications of Computer

1.3 Components of a Computer System
- 1.3.1 Central Processing Unit
- 1.3.2 Keyboard, mouse and VDU
- 1.3.3 Other Input devices
- 1.3.4 Other Output devices
- 1.3.5 Computer Memory

1.4 Concept of Hardware and Software
- 1.4.1 Hardware
- 1.4.2 Software
  - 1.4.2.1Application Software
  - 1.4.2.2Systems software

## 2. ELEMENTS OF WORD PROCESSING

2.0 Introduction
2.1Objectives
2.2 Word Processing Basics

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2.2.1 Opening Word Processing Package
2.2.2Menu Bar
2.2.3Using TheHelp
2.2.4Using The Icons Below Menu Bar
2.3 Opening and Closing Documents
2.3.1 OpeningDocuments
2.3.2 Save and Save as
2.3.3 Page Setup
2.3.4 Print Preview
2.3.5 Printing ofDocuments
2.4 Text Creation and manipulation
2.4.1 Document Creation
2.4.2 EditingText
2.4.3 Text Selection
2.4.4 Cut, Copy and Paste
2.4.5 Font and Size selection
2.4.6 Alignment of Text
2.5 TableManipulatin
2.5.1 Draw Table
2.5.2 Changing cell width and height
2.5.3 Alignment of Text incell
2.5.4 Delete / Insertion of row and column
2.5.5 Border and shading

**3. SPREAD SHEET**

3.1 Introduction
3.2 Objectives
3.3 Elements of Electronic Spread Sheet
3.3.1 Opening of Spread Sheet
3.3.2 Addressing ofCells
3.3.3 Printing of Spread Sheet
3.3.4 Saving Work books
3.3Manipulation of Cells
3.3.1 Entering Text, Numbers and Dates
3.3.2 Creating Text, Number and Date Series
3.3.4 Editing Work sheet Data
3.3.4Inserting and Deleting Rows Column
3.3.5Changing Cell Height and Width
3.4 Function and Charts
3.4.1 Using Formulas
3.4.2 Function

3.4 Manipulation of Cells
3.4.4 Entering Text, Numbers and Dates
3.4.5 Creating Text, Number and Date Series
3.4.6 Editing Work sheet Data
3.4.7 Inserting and Deleting Rows Column
3.4.8 Changing Cell Height and Width
3.5 Function andCharts
3.5.4 Using Formulas
3.5.5 Function
3.5.6 Charts

**4.MAKING SMALLPRESENTATIONS**

4.1 Manipulation of Cells
4.1.1Entering Text, Numbers and Dates
4.1.2 Creating Text, Number and Date Series
4.1.3 Editing Work sheet Data
4.1.4 Inserting and Deleting Rows Column
4.1.5 Changing Cell Height and Width
4.2 Function andCharts
4.2.1 Using Formulas
4.2.2 Function
4.2.3 Adding Clip Art Pictures
4.2.4 Inserting Other Objects
4.2.5 Resizing and Scaling an Object
4.3 Providing Aesthetics
4.3.1 Enhancing Text Presentation
4.3.2 Working with Color and Line Style
4.3.3 Adding Movie and Sound
4.3.4 Adding Headers and Footers
4.4 Presentation of Slides
4.4.1 Viewing A Presentation
4.4.2 Choosing a Set Up for Presentation
4.4.3 Printing Slides And Handouts
4.5 Slide Show
4.5.1 Running a Slide Show
4.5.2 Transition and Slide Timings
4.5.3 Automating a Slide Show

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## 8. Information Technology (IT)

Akole Taluka Education society's

**Agasti Arts commerce and Dadasaheb Rupwate Science college Akole**

Tal: Akole Dist; Ahmednagar 422601

**Department of - Computer Science and Management**

**Activity Report: 2021-22**

| | |
|---|---|
| **Activity Name** | **Certification Courses** |
| **Date** | **August 2021 (30 lectures )** |
| **Organized by** | **Computer Science and Management Department** |
| **Activity for** | **T. Y. BBA(CA)** |
| **Type of activity** | **Information Technology** |
| **Objectives** | To provide education in the use of Information and Communication Technology or ICT. To encourage higher-level thinking and creativity through ICT |
| **Brief information about activity** | **Introduction to Computers**<br>Objectives<br>Components of computer system<br>Concept H/W & S/W<br>Elements of word processing, spreadsheet |
| **Outcomes** | Design, implement and evaluate a computer-based system, or process component, |
| **No. of students** | **64** |
| **Report** | **64 pass/ 64 students** |
| **Attachments** | **Attendance of students** |

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## Certificate Course in Information Technology.

| Sr.No | Contents to be Covered | Time Duration |
|---|---|---|
| 1 | **Basics Of Computer**<br>1.1)Computer Hardware And IT Infrastructure<br>1.2)Categories of Computers .<br>1.3)Types Of Software. | 3Hours |
| 2 | **Managing Data Resourses**<br>2.1)Organising Data IN Traditional File Enviroment.<br>2.2)Database Approach to Data Management.<br>2.3)Creating Database Environment.<br>2.4)Database Trends. | 3 Hours |
| 3 | **Programming With C**<br>3.1)Introduction.<br>3.2)Variable Declaration.<br>3.3)Control Structure.<br>3.4)Data Types ,Operatores.<br>3.5)Basic Program Structure,<br>3.6)Simple Programs. | 9 Hours |
| 4 | **Relational Database Management System**<br>4.1)Introduction<br>4.2)Data Types ,Operatores.<br>4.3) Variable Declaration.<br>4.4)PLSQL block.<br>4.5)Procedure, Function, Trigger, Cursor. | 9 Hours |
| 5 | **Computer Network.**<br>5.1)Concept.Elements of communication System.<br>5.2)Data Transmission media.<br>5.3)Topology,LAN,MAN,WAN.<br>5.4)Use Of Social Network in Business,use of ICT. | 6 Hours |

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## 9. Communication & Soft Skill Development (Commerce)

Affiliated to Savitribai Phule Pune University

Akole Taluka Education Society's

**Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole.**

**Short Term Certificate Course**

# Communication and Soft Skill Development

**Organised by**

**Department of Commerce**

**2021-22**

**Method of Instructions:**

Personal contact program, lectures, practicals, activities, role play.

**Lay out/ Syllabus of Course –**

| U. N. | Name of the Unit | Contents | Skills to be developed | Lecture -Hours |
|---|---|---|---|---|
| 1. | **Basics of Soft Skills** | 1.1 Introduction, Meaning, Definition of soft skills<br>1.2 Characteristics, and Importance of Soft skills<br>1.3 Different Elements of Soft skills | Acquiring fundamental knowledge of softskills and its elements. | 8 |
| 2. | **Communication Skills** | 2.1 Communication Skills- Written, oral, Non-verbal<br>2.2 Listening Skills<br>2.3 Speaking Skills<br>2.4 Manners and Etiquettes | Developing listening, speaking skills and acquiring manners and etiquettes in different situations. | 7 |
| 3. | **Presenting Skills** | 3.1 Presentation skills<br>3.2 Group Discussion<br>3.3 Interview skills | Developing PPT presentation skills, participating in Group Discussion and facing interview with confidence | 7 |
| 4. | **Management Skills** | 4.1 Time Management Skills<br>4.2 Stress Management Skills<br>4.3 Leadership Skills<br>4.4 Problem Solving Skills | Developing habit of managing time, managing stress, leading the events and solving the problems | 8 |
| | | | **Total Hours** | **30** |

**10.**

**Study Material –**

1. The hard Truth about soft skills: Workplace lessons smart people wish they's learned sooner – by Pegg Klaus, Publisher – Collins.
2. Bridging the soft skill Gap – By Bruce Tulgan, Willey.
3. Softskills Training: A work book to develop skills for employment- by Fredreick H. Wentz., McGraw Hill.
4. Everyone Communicates, few people connect: What the most effective people do diffently by John C. Maxwell, Collins.
5. How to talk to anyone: 92 little Tricks to have a big success in relationship by Leil Lowndes, C.Chand Publication.
6. Team work 101: what every leader needs to know – By John C. Maxwell., Willey
7. The Advantage: The 7 Softskills you need to stay ahead By Emma Sue Prince, Kindlel
8. Flipp the Switch- Strengthen Executive function skills By Sheri Wilkins and Carol Burmeister, Pearson.
9. Adapt Ability: How to survive change you didn't ask for- By M.J. Ryan.
10. Conflict Communication: A new paradigm inconsious Communication, By Rony Miller, Collins.

Course Co-ordinator
Dr. Mahejabin Sayyad.
Dept. of Commerce.

Principal.
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Co-ordinator
Internal Quality Assurance Cell
Arts,Commerce & Dadasaheb
Rupwate Science College,Akole
Dist.Ahmednagar (422601)

## 10. Import- Export Management (IT)

Akole Taluka Education society's

**Agasti Arts commerce and Dadasaheb Rupwate Science college Akole**

Tal: Akole Dist; Ahmednagar 422601

**Department of - Computer Science and Management**

**Activity Report: 2021-22**

| | |
|---|---|
| **Activity Name** | **Certification Courses** |
| **Date** | **August 2021 (30 lectures )** |
| **Organized by** | **Computer Science and Management Department** |
| **Activity for** | **T. Y. BBA** |
| **Type of activity** | **Import & Export Management** |
| **Objectives** | **Export and import represent two sides of an equivalent coin of international trade.** |
| **Brief information about activity** | **Basic of Import & Export**<br>Classifications of imports & exports<br>Identifying Foreign Markets<br>**Export Procedures**<br>Basic documentations<br>Quality-Packing, Marketing & Labeling<br>**Import Procedure**<br>Import contract<br>Legal Dimensions of import procedure<br>Valuations of custom duty |
| **Outcomes** | **Student can improve the foreign market skills** |
| **No. of students** | **25** |
| **Report** | **25 pass/ 25 students** |
| **Attachments** | **Attendance of students** |

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2021-22

**Akole Taluka Education Society's**

**Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole**

A

Syllabus for

## Value added Course

## Import and Export Management

**Chapter 1 Basics of Import and Export** **( 8 Lectures)**

- Meaning of Exports and Imports
- Classification of Exports and Imports
- Categories of Exporters
- Strategy and Preparation for Foreign Trade
- Identifying Foreign Markets
- Methods of Entering International Market

**Chapter 2 Export Procedure** **( 8 Lectures)**

- Export Procedure Basic Documentation
- Excise clearance for export
- Quantity – Pre-shipment inspection
- Packaging, Marketing, Labeling
- Shipment of Goods
- GSP [Generalized System of preferences] Rules& Origin
- Role of overseas agent& remittance of commission.
- Incentives for export from Govt.
- Various modes of transport.Basis of Selection, Induction

**Chapter 3 Import Procedure** **( 8 Lectures)**

- Import Licence
- Import Contract
- Pre-import Procedure
- Legal Dimensions of Import Procedure
- Customs Clearance for Imported Goods
- Warehousing of Imported Goods
- Valuation for Customs Duty
- Benefits of Import]

**Chapter 4 Duty Drawback & Remittance Scheme** **(6 Lectures)**

- Advance License
- Replenishment license
- Special Interest License
- DEPR Scheme [Duty Entitlement Pass Book Scheme]
- DFRC Scheme [ Duty Free Replenishment Certificate]

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## 11. Vermicompost Technology (Zoology)

Akole Taluka Education Society's

**Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole**

Tal- Akole, Dist- Ahmednagar 422601

Department of Zoology

Activity Report 2021-22

| | |
|---|---|
| Activity Name | Certificate course in Vermicompost Technology |
| Date | - |
| Organized by | Department of Zoology |
| Activity for | B.Sc. Students |
| Type of Activity | Certificate Course |
| Objectives | Students will be able to compost in a limited space and describe the decomposing process |
| Brief information about activity | Recycling trash has become essential in today's society in order to protect our environment and maintain our health. So let's prepare for the certificate course in Vermicompost, which is also known as the "Four R's" of recycling, reduce, reuse, recycle, and restore. |
| Outcomes | |
| No. of Students | 55 |
| Analysis of Feedback | - |
| Report | - |
| Attachments | Photo, Attendance of Student & Teachers, News/ News Cutting, Feedback Form. |
| Other Information | |

Head of Department/Activity

Co-ordinator
Internal Quality Assurance Cell
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Principal
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# DEPARTMENT OF ZOOLOGY

## CERTIFICATE COURSE IN VERMICOMPOST TECHNOLOGY

Vermicomposting truly is nature's great disappearing act! Aristotle once said, *"Worms are the Intestines of the Earth"*. Using worms to convert decomposing food waste into nutrient-rich fertilizer is simple, inexpensive, energy efficient, and a great way to teach students to become life-long recyclers. Vermicomposting technology is known throughout the world, albeit in limited areas. It may be considered a widely spread, though not necessarily popular technology. As a process for handling organic residuals, it represents an alternative approach in waste management, in as much as the material is neither land filled nor burned but is considered a resource that may be recycled. In this sense, vermicomposting is compatible with sound environmental principles that value conservation of resources and sustainable practices. Vermicomposting is akin to composting in that similar feedstock-organic residuals -are used. Both systems utilize microbial activity to break down organic matter in the moist, aerobic environment. Vermicomposting is however faster, produces fewer odors and produces a superior product. But vermicomposting requires greater surface area, more moisture, and is susceptible to heat, high salt levels, high ammonia levels, and substances that may be toxic to earthworms. Of the 4400 identified earthworm species, specific species of litter dwelling earthworms are required for this purpose. Vermicomposting in developing countries could prove to be useful in many instances. Where accumulation of food wastes, paper, cardboard, agriculture waste, manures and biosolids is problematic, composting and vermicomposting offer potential to turn waste material into a valuable soil amendment. In the past ten years an organization in India has promoted over 3,000 farmers and institutions to switch from conventional chemicals to the organic fertilizer, vermicompost. Vermiculture enables any scale or size of operation. Vermicompost is being used in over 1, 00,000 hectare cultivated area in almost all agro-climatic zones in India.

Noted for its ability to increase organic matter and trace minerals in soil, vermiculture has been the primary focus at Maharashtra Agricultural Bioteks in India, an organization that has initiated both commercial and educational ventures to promote vermiculture. In 1985, Maharashtra Agricultural Bioteks was formed and established a small plant to manufacture vermicompost from agricultural waste. Those involved believed that a successful commercial venture based on regenerative principles might convince others to

adapt sustainable practices.The organization currently produces 5,000 tons of vermicompost annually. Its real achievement, however, has been in raising awareness among farmers, researchers and policy makers in India about regenerative food production methods. The group is directly responsible for 2,000 farmers and horticulturalists adopting vermicomposting. These converts have begun secondary dissemination of the principles they were taught.

In 1991-1992, Maharashtra Bioteks and the India Department of Science And Technology promoted the adoption of vermicompost technology in 13 states in India. The group has also established a vermicompost unit with Chitrakoot Gramodaya University, Madhya Pradesh which produces five tons of vermicompost per month.Educational institutes in Maharashtra & other states have started conducting certificate/diploma/regular courses on vermiculture, vermiculture biotechnology, and vermiculture & vermicompost technology. The duration of courses ranges from 10 days to six months. The Department of Zoology in collaboration with Geography & Botany Departments running this course.

**Aims& Objective:**

- Students will be able to compost in a limited space and describe the decomposing process.
- The interested students will get the knowledge of composting,
- Students will get the employment,
- They can generate employments,
- They will also turn towards organic farming,
- Will help to maintain the environment pollution free and
- Will get the knowledge of biodiversity of local earthworms.

➢ The detail of the course is as follows:

**Focus:**

To convert unwanted, organic matter, particularly food scraps and paper into fertile soil.

**Name of the course: Certificate Course in Vermicompost technology**

- **Level:** Certificate
- **Stream:** Science or any stream
- **Subject:** Vermiculture/ vermicompost

**Eligibility Criteria**: 10+2

2

**Duration:** 3.5months i.e.105 days

**Language:** English/Marathi

**Intake:** 20 seats

**Fees: Rs.200/**

**Selection /Admission Criteria**: First come first serve

**Attendance:** 90%

**Lecture/practical timing:** 3.30 PM to 4.30 PM

**Academic calendar for the course:** Five days in a week (4days theory periods & 1day practical)

**Available infrastructure**: Well equipped laboratory, small & large scale vermiculture units

**Teaching Staff**: Qualified, Experienced Guest Lecturers & eminent professors will be invited.

**Non teaching staff**: 1lab assistant & 2 lab attendants.

**Examination structure & schedule:**

At the end of course the examination will be conducted. Its notice & time table will be displayed for communication to the students at least before 15 days of the date of examination.

1. Course VT-01Theory paper (objective/short answer type) = 50marks, Two hours duration.
2. Course VT-02 Practical paper =50 marks, two hours duration

Marking scheme & Award of grades: Average of the marks obtained in each paper will be calculated as: 50+50+100/2 = 50;

i) 8-10 marks = 1point, C' grade – pass;

ii) 10-20 marks = 2 points, B' grade;

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iii) 20-30 marks = 3points, B+ grade;

iv) 30-40 marks =4points, A' grade;

v) 40-50 marks =5points, A+ grade

Award of Certificate carrying grades: after successful completion of course colorful certificate indicating grade will be awarded to the candidate.

**Reservation:** NA

**Course Content: Syllabus/Program:**

**SCHEME**

Vermicompost technology as one of the Certificate Course at undergraduate level

| | |
|---|---|
| **Credits to be earned** | **:04** |
| Theory paper | :03credits |
| Practical course/paper | :01 |

Proposed distribution of the course structure

| Sr.No. | Code | Title of the paper | Credit pattern in L:T:P | Credit value |
|---|---|---|---|---|
| 1 | VTT - 01 | Vermicompost technology | 3:0:0 | 03 |
| 2 | VTP - 02 | Vermicompost technology related to theory (VTP – 01) | 0:0:1 | 01 |

Open selective course for any students enrolled in the College from different disciplines.

**Title of the Course**: Certificate Course in Vermicompost technology

**Theory Course VT -01**

**Theory** **3 Credits**

| | | |
|---|---|---|
| | **Unit-I General Vermiculture/ Vermicompost** | **12Hrs** |

4

| | | |
|---|---|---|
| 1 | Introduction to vermiculture. definition, meaning, history, economic important, their value in maintenance of soil structure, role as four r's of recycling reduce, reuse, recycle, restore. | |
| 2 | His role in bio transformation of the residues generated by human activity and production of organic fertilizers. How does nature works. | |
| 3 | The matter and humus cycle (product, qualities). Ground population, transformation process in organic matter. | |
| 4 | Choosing the right worm. Useful species of earthworms. Local species of earthworms. Exotic species of earthworms. Complementary activities of autoevaluation. | |
| | **Unit-II**<br>**Earthworm Biology and Rearing** | **12Hrs** |
| 5 | Key to identify the species of earthworms. | |
| 6 | Biology of Eisenia fetida.<br>a) Taxonomy Anatomy, physiology and reproduction of Lumbricidae.<br>b) Vital cycle of Eisenia fetida: alimentation, fecundity, annual reproducer potential and limit factors (gases, diet, humidity, temperature, PH, light, and climatic factors).<br>Complementary activities of auto evaluation. | |
| 7 | Biology of Eudrilus eugeniae.<br>c) Taxonomy Anatomy, physiology and reproduction of Eudrilidae.<br>d) Vital cycle of Eudrilus eugeniae: alimentation, fecundity, annual reproducer potential and limit factors (gases, diet, humidity, temperature, PH, light, and climatic factors).<br>Complementary activities of auto evaluation. | |
| | **Unit-III**<br>**Vermicompost Technology (Methods and Products)** | **12Hrs** |
| 7 | Small Scale Earthworm farming for home gardens<br>- Earthworm compost for home gardens | |
| 8 | Conventional commercial composting<br>- Earthworm Composting larger scale | |
| 9 | - Earthworm Farming (Vermiculture), Extraction (harvest), vermicomposting harvest and processing. | |

5

| | | |
|---|---|---|
| 10 | Nutritional Composition of Vermicompost for plants, comparison with other fertilizers | |
| 11 | Vermiwash collection, composition &use | |
| 12 | Enemies of Earthworms, Sickness and worm's enemies.<br>Frequent problems. How to prevent and fix them.<br>Complementary activities of auto evaluation. | |
| | **Unit-IV**<br>**Applied vermiculture.** | **12Hrs** |
| 13 | a) The working group experience with E. fetida populations comportment with farm industrial residues (frigorific, cow places, feed-lot, aviaries exploitations, and solid urban residues). b) Lineaments to vermicomposting elaboration projects. | |
| 14 | c) Considerations about economical aspects of this activity.<br>Research and ratability according to different exploitation orientations (worm's meat production, worm's humus production, or integrated projects).<br>Toxins released by the worms (harmful effects)<br>Complementary activities of auto evaluation. | |

**Practical Course – VT- 02**

**Practicals** **1 Credit**

| | **Unit-V** | **18Hrs** |
|---|---|---|
| 1 | Key to identify different types of earthworms | |
| 2 | Field trip- Collection of native earthworms & their identification | |
| 3 | Study of Sytematic position, habits, habitat & External characters of Eisenia fetida | |
| 4 | Study of Life stages & development of Eisenia fetida | |
| 5 | Study of Life stages & development of Eudrilus eugeniae | |
| 6 | Comparison of morphology & life stages of Eisenia fetida & Eudrilus eugeniae | |
| 7 | Study of Vermiculture, Vermiwash & Vermicompost equipments, devices | |
| 8 | Preparation vermibeds, maintenance of vermicompost & climatic conditions. | |
| 9 | Harvesting, packaging, transport and storage of Vermicompost and separation | |

6

| | | |
|---|---|---|
| | of life stages | |
| 10 | Study of verms diseases & enemies | |
| 11 | Study the effects of vermicompost & vermiwash on any two short duration crop plants | |
| 12 | Study the effects of sewage water on development of worms | |

Total periods in hrs = Theory 12hrs per unit x 4 units = 48hrs x 60 minutes =2880 minutes+18 hrs for practical (i.e. 18x60 minutes =1080 minutes); 2880+1080 =3960 minutes. 66hrs÷5hrs in a week = 13.2 weeks duration i.e. 3.5 months (105 days)

Initially about 60days are required to set the culture or to form the vermicompost, latter on in about 45 days second culture will be formed. Students will observe 2 succeeding beds (rearing).Total days 60+45 = 105 days. ( not recognized by UGC, for UGC 20 credits of which 10 credits for project/ field work/training, it should be of 300 hrs, duration 6 months)

**Advantage of the Course & Future Prospects:**

I. Students can construct their own compost farm & thereby can get monthly income of Rs. 7000-8000.
II. Students/ farmers by using vermicompost in their field can increase the crop yield.
III. Students residing in cities can produce vermicompost in small scale for garden/household plants.
IV. They can get the jobs in educational institutes as vermicompost/vermiculture technician.
V. The candidate can generate income by supplying verms, vermiwash, & vermicompost.
VI. By developing & propagating vermicompost technology he/she will directly or indirectly help to prevent environmental pollution, by using vermicompost in the field & thereby increasing crop yield he will help to solve food problems.
VII. It will lead towards organic farming & healthy food.
VIII. In today's world, recycling of garbage has become necessary in order to sustain our health and environment. So let's join for **Four R's of Recycling** **Reduce, Reuse, Recycle, Restore** i.e. certificate course in vermicompost technology.

7

**Reference books:**


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2. Dash, M.C., B.K.Senapati, P.C. Mishra (1980) " Verms and Vermicomposting" Proceedings of the National Seminar on Organic Waste Utilization and Vermicomposting Dec. 5-8, 1984, (Part B), School of Life Sciences, Sambalpur University, Jyoti Vihar, Orissa.
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4. Lee, K.E. (1985) "Earthworms: Their ecology and Relationship with Soils and Land Use" Academic Press, Sydney.
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## 12. Red Wine Making Process (Wine Tech)

**Agasti Arts, Commerce and Dadasaheb Rupwate Science College Akole**
**Tal-Akole, Dist- A. Nagar 422601**
**Department of Wine, Brewing & Alcohol Technology**
**Activity Report:-Year- 2021-22**

| | |
|---|---|
| Activity Name | Online Certificate course in Red Wine making |
| Date | 04/04/2022 to 30/04/2022 |
| Organised by | Department of Wine ,Brewing & Alcohol Technology |
| Activity for | T.Y.BSc. Students of Wine, Brewing & Alcohol Technology |
| Type of Activity | Certificate course regarding preparation of Red Wine |
| Objectives | Expertise the students in preparation of Red Wine, Enhancement of experimental skills,Hands-on Training. |
| Brief Information about activity | Students of Wine Technology should able to prepare wine on his own.Preparation of product like wine is the key for entreneurship and bright career in the field of Wine Technology.Keeping this things in mind the certificate course regarding preparation of Red Wine was constructed. |
| Outcomes | Development of Self confidence, Proficiency, Update and Enhance subject knowledge,Become technically sound in preparation techniques of Red Wine. |
| Nunber of Student | 17 |
| Report | Successfully completed Online Certificate course in Red wine making |
| Attachment | Photo,Attendence student |

Head of Department/Activity

HEAD
DEPARTMENT OF WINE TECHNOLOGY
Agasti Arts, Comm.& Dadasaheb Rupwate Sci.College,Akole,Dist.A.Nagar

Principal
Agasti Art's, Comm., & Dadasaheb Rupwate Science College, Akole Tal.Akole, Dist.Ahmednagar

Akole Taluka Education Society's
Agasti Arts, Commerce and Dadasaheb Rupwate Science College,
Akole, Dist- Ahmednagar-422601

# DEPARTMENT OF WINE,BREWING & ALCOHOL TECHNOLOGY

## Online Certificate course offered during the year 2021-2022

For

Wine technology students

**'ONLINE CERTIFICATE COURSE IN RED WINE MAKING PROCESS '**

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**4. Destemming & Crushing** **1 Lecture**

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14.1 Benefits of Red wine in curing different diseases like excess obesity, Reduces Stress etc.

## Introduction of Wine

Wine is an alcoholic drink made from fermented grapes .Yeast consumes the sugar in the grapes and converted in to ethanol, carbon dioxide and heat. Differnt varieties of grapes and strains of yeasts produce different styles of wine. There are two types of wine in which red wine is made from dark-colored (black) grape varieties. The actual color of color of the wine can range from intense violet, typical of young wines, through to brick red for mature wines. White wine is a wine that is fermented without skin contact. White wine is made from white grapes. The color can be straw-yellow, yellow-green or yellow-gold.

## OBJECTIVES OF RED WINE MAKING PROCESS

- To gives the knowledge about Wine to the Student .
- To provide enough information to understand the Red wine making process.
- To gives knowledge about red wine making process.
- To gives the knowledge about health benefits of Red Wine & how wine is beneficial for health.

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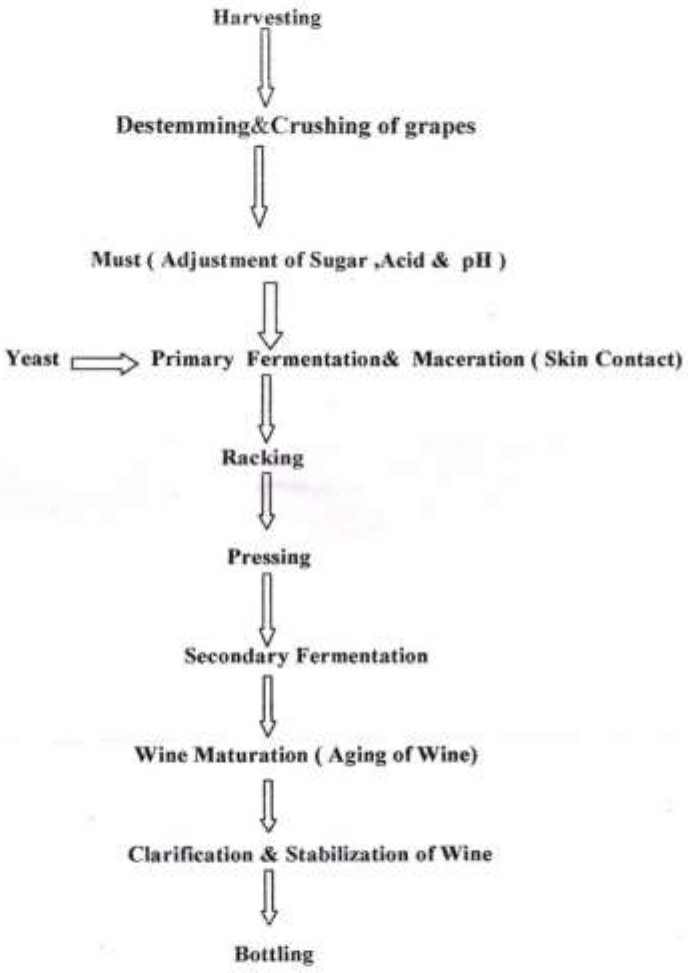
## Flow Chart of Red Making Process

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## Harvesting of Grapes

Harvesting is the first step of wine making process. Harvesting of grapes based on their ripeness i.e. matured grapes. Which may have berry contains sufficient amount of sugar, acidity, aroma & color well developed. such a grapes are collected from vine and get transported to winery ,all this process together known as Harvesting. The Harvesting of grapes ,done either by hand harvesting or by mechanical harvesting. In warm climates harvesting may have to occur at night or in the early morning. The choice of harvesting method depend on the grape maturity ,disease, economic condition & climatic condition etc.

## Methods of Grape Harvesting

1) Hand Harvesting :Hand harvesting is also known as manual harvesting . manual harvesting still has several advantages over mechanical harvesting. Hand harvesting also permit the reaction of immature reinsured or disease , fruit as well as selection of grapes at particular states of maturity. Hand harvesting also protects grape juice content from oxidation due to damaged skin. but hand harvesting has some disadvantages In contrast to mechanical harvesting hand harvesting is more expensive ,more labour intensive , slower & stop during unfavorable conditions.

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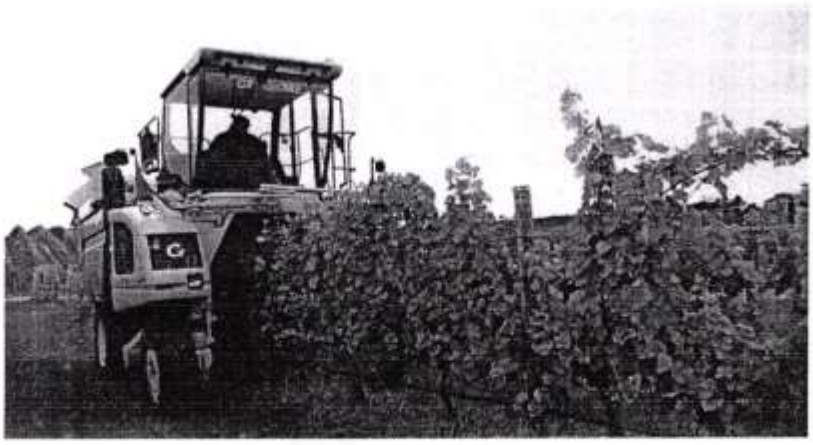
2) **Mechanical Harvesting** : It has the advantage of being much faster than hand harvesting & much more efficient. It is cheaper than hand harvesting as labour cost are minimal.however, it is not selective , bad or unripen cluster may be harvested along with ripen grape cluster. mechanical harvestingmay lead to juice extraction & loss of yield in addition to microbial growth.



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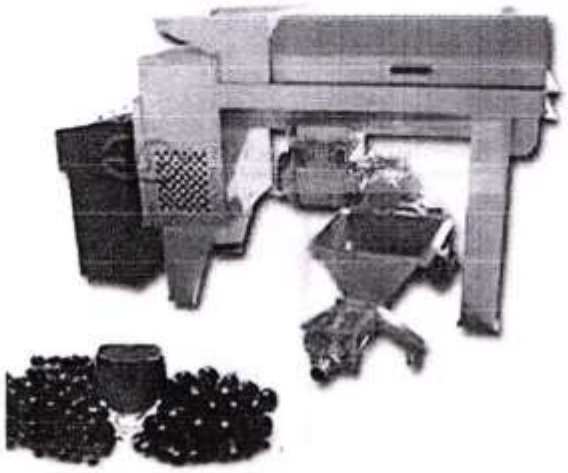
## Destemming & Crushing

On arrival at the winery,the stalks may be removed to prevent any bitterness tainting the juice.The grapes can be lightly crushed. Grapes are traditionally crushed to break the skin in order to release the pulp and juice.Both these tasks can be performed by the same machine, a crusher-destemmer.The mixture of skin ,pulp,juice and seed produced is called the must.In crusher berries are broken then juice ,pulp, skin, seeds passed through opening to be collected. And pumped to retaining tank. There are some advantages of Crushing : 1) Break the berries and allow to produced mixture of juice, pulp, seed and skin called must. 2) It limit microbial contamination& permit better control on oxidation. 3) Crushing is done as it lead to faster the fermentation process. And also avoid residual sugar content.



**Destemmer & Crusher**

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## Must( Skin + juice +Seed)

The mixture of skin, pulp, juice & seed together known as Must.The solid portion of must is called as pomace. It typically makes up 7% to 23% of total weight of the must.making the must is the first step in wine making process.following must adjustment can be done-

1) Sugar- Sugar addition can be done in the form of glucose, fructose, sucrose or concentrate sugar syrup. Brown sugar addition is avoided as it impart molasses like aroma or flavor in wine. About 17 gm/lit sugar addition is recommended while in case of red wine.

2) Acid and pH adjustment- In making premium wine style , it is essential to undergo acid adjustment if necessary. Acid adjustment of juice / wine can be done as soon as possible .it can be carried out two conditions. 1) By adding acid to get balance , between pH and acidity of resultant juice. 2) Another is by reducing acidity of resultant juice.

3) Nutrients – Nutrient is a substance used by and organism to survive and it gives to energy to help. In nutrient amino acid , vitamin , minerals and micronutrients. In a proper fermentation to occur yeast , must have adequate nutrient available.

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## Primary Fermentation

**Primary fermentation is the initial stage of fermentation in which sugar which is present black grapes converted in to alcohol (ethanol) and carbon dioxide( $CO_2$) .**

**The chemical reaction of primary fermentation is given below :**

**Yeast**

**Glucose** ⟹ **Ethanol + Carbon dioxide +Heat**

**Zymase**

$$C_6H_{12}O_6 + \text{Yeast} \Longrightarrow 2CH_3CH_2OH + 2CO_2 + \text{Heat}$$

The fermentation of red wine takes place with grape solids present,in order to extract color from the skins. Initially the fermentationcan be very tumultuous, but as more sugar is converted, the rateslows down. In the majority of cases the fermentation continueduntil the wine is dry or off dry, and depending upon the richness ofthe must, the final alcohol concentration is generally in the range11% to 14.5% by volume.

The process of fermentation in winemaking turns grape juice into an alcoholic beverage. During fermentation, yeasts transform sugars present in the juice into ethanol and carbon dioxide (as a by-product). In winemaking, the temperature and speed of fermentation are important considerations as well as the levels of oxygen present in the must at the start of the fermentation.

The risk of stuck fermentation and the development of several wine faults can also occur during this stage, which can last anywhere from 5 to 14 days for primary fermentation and potentially another 5 to 10 days for a secondary fermentation. Fermentation may be done in stainless steel tanks, which is common with many white wines like Riesling, in an open wooden vat, inside a wine barrel and inside the wine bottle itself as in the production of many sparkling wines.

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## Temprature Control

The fermentation process is a turbulent one and creates heat naturally. During red winemaking, fermentation may begin at about20 °C, but temperatures may rise to 30° to 32 °C. Yeast ceases to work if the temperature rises above approximately 35°C. Therefore some form of temperature control may be necessary, especially in warmer regions, to prevent this happening before the sugars are fully fermented. It is only in the past few decades that winemakers have had the equipment and ability to be able to have real control. One hundred grams of sugar in a litre of juice has, when fermented, the theoretical potential to heat the juice by 13 °C. If grape must of11.1° Baumé commences fermentation at 15°C, the potential temperature increase could be to 41 °C. If fermentation of must with a Baumé of 14.5° commences at 20°C, the potential temperature in crease is to 54 °C. Of course, some of this heat is naturally dissipated during the period of fermentation through the walls of the vat and with the rising carbon dioxide, through the juice to the surface. Good colour extraction requires warm fermentations. However ,cooler fermentations aid the growing of yeast colonies and give higher alcoholic degrees. The warmer the temperature, the less time the fermentation takes. Accordingly, managing the temperature can be

quite a tricky exercise. A winemaker may decide to start a vat fairly cool, at say 20 °C, and allow it to rise naturally to around 30 °C to aid extraction. In the latter stages, the vat may be cooled to 25 °C or

so, to ensure complete fermentation to dryness. In the cool underground cellars of regions like Burgundy, the temperature of small vats or barrels can be self-regulating. Cooling equipment may be required for larger vats. Wine can be pumped through heat exchangers to reduce (or increase) temperature. Stainless steel tanks are now commonly wrapped with water or glycol cooling jackets. Alternatively, they may be cooled by showers of cold water running down the outside. In concrete or wooden vats a metal cooling

device (drapeau) can be inserted or built in.

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## Extraction

The traditional process for red wines is for the grape mass to be fermented in open vats. The solids and skins rise to the surface with the CO2 and create a floating cap. This is a disadvantage because the skins need to be in contact with the juice for there to be good extraction of colour and tannins. Also, acetic bacteria thrive in such a warm, moist environment, risking spoilage of the juice. Consequently, during the process, the juice is drawn out from near the bottom of the vat and pumped up and sprayed over the cap to submerge it. This process, known as remortgage, has the additional benefit of aerating the must, which helps to boost the yeast colonies. This technique of pigeage, simply punching down the cap, is used for some varieties, particularly Pinot Noir which needs a very gentle extraction process. Although vats can now be fitted with mechanical pigeage equipment, in many wineries submerging the cap is done by hand with wooden paddles, sticks, or even the feet of the cellar staff precariously suspended over the fermentation vats

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## Maceration (Skin Contact)

Maceration is the winemaking process where the phenolic materials of the grape—tannins, coloring agents (anthocyanins) and flavor compounds—are leached from the grape skins, seeds and stems into the must.

Depending on the style required, the wine may be left to soak with the skins after completion of the alcoholic fermentation, until sufficient colour, flavour and tannins are extracted. This maceration could vary from 2 or 3 days up to 28 days. If an 'early drinking' red is required, the juice may be drained off the skins just before completion of the fermentation. Alternatively, if the winemaker believes that a post-fermentation maceration would not be beneficial, with the risk of hard tannins being extracted, the tank may be drained hot, that is, immediately after the alcoholic fermentation, before the wine has cooled.

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## Racking

Racking is the process of transferring juice or wine from one vessel to another, leaving any sediment behind. After the fermentation and any maceration the wine, known as free-run juice, will be run off to another vat. The skins and other solids are left behind in the fermentation vat. These will be transferred to the press to obtain further juice. Between 10 and 15% of the total juice comes from the pressing process. Free run juice has less tannin and is usually considered superior to pressed juice. Some producers choose to make their wine only from free run juice. Racking will also take place at various other times in the winemaking/maturation process to remove the wine from lees and sediment, and clarify it. Aeration can also take place during the racking process, and an addition of sulphur dioxide may be made if necessary.

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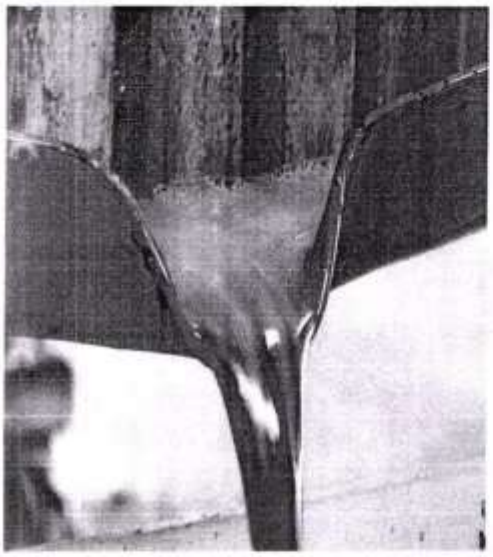
## Pressing

Pressing in winemaking is the process where the juice is extracted from the grapes with the aid of a wine press, by hand, or even by the weight of the grape berries and clusters.[1]Historically, intact grape clusters were trodden by feet but in most wineries today the grapes are sent through a crusher/destemmer, which removes the individual grape berries from the stems and breaks the skins, releasing some juice, prior to being pressed.The juice released from the press will naturally be higher in tannin and colouring pigments. More than one pressing may be carried out, but with each pressing the press wine becomes coarser. Some presses are controlled to exert varying levels of pressure at different stages, often gentle at the beginning but harder with each subsequent pressing. There are a variety of types of press available, including basket press, horizontal plate press and pneumatic press. The characteristics of these will be considered later



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## Malolactic fermentation( Secondary Fermentation)

Malolactic fermentation (also known as malolactic conversion or MLF) is a process in winemaking in which tart-tasting malic acid, naturally present in grape must, is converted to softer-tasting lactic acid. Malolactic fermentation is most often performed as a secondary fermentation shortly after the end of the primary fermentation, but can sometimes run concurrently with it. The process is standard for most red wine production . The fermentation reaction is undertaken by the family of lactic acid bacteria (LAB); Oenococcusoeni, and various species of Lactobacillus and Pediococcus. Chemically, malolactic fermentation is a decarboxylation, which means carbon dioxide is liberated in the process

This usually follows the alcoholic fermentation and so is sometimes referred to as secondary fermentation. Yeast is not involved. It can be described as a transformation caused by the action of strains of bacteria of the genera Lactobacillus, Leuconostoc and Pediococcus. Harsh malic acid (as found in apples) is converted into softer tasting lactic acid (as found in milk). One gram of malic acid produces 0.67g of lactic acid and 0.33g of carbon dioxide. Malolactic fermentation can be induced by warming the vats, or inoculating with strains of lactic acid bacteria. Alternatively, it can be prevented by treating the wine with sulphur dioxide and/or keeping the wine cool. It gives the wine a slight 'buttery' and/or toasty nose and sometimes a certain amount of complexity.

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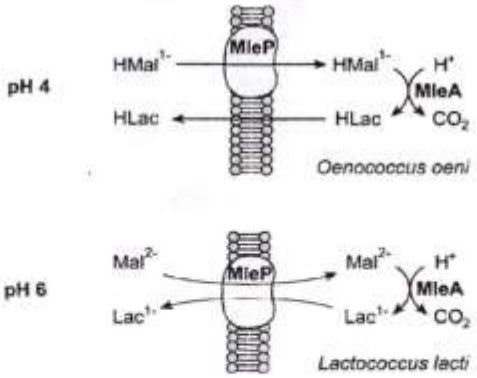
## Conversion of malic into lactic

Lactic acid bacteria convert malic acid into lactic acid as an indirect means of creating energy for the bacteria by chemiosmosis which uses the difference in pH gradient between inside the cell and outside in the wine to produce ATP. One model on how this is accomplished notes that the form of L-malate most present at the low pH of wine is its negatively charged monoanionic form. When the bacteria move this anion from the wine into higher pH level of its cellular plasma membrane, it causes a net-negative charge that creates electrical potential. The decarboxylation of malate into L-lactic acid releases not only carbon dioxide, but also a proton that generates the pH gradient which can produce ATP.




The chemical process of malolactic fermentation is actually a decarboxylation instead of a fermentation. The bacterial cell takes in malate, converts it into lactate, and releases carbon dioxide in the process. The lactate is then expelled by the cell into the wine.

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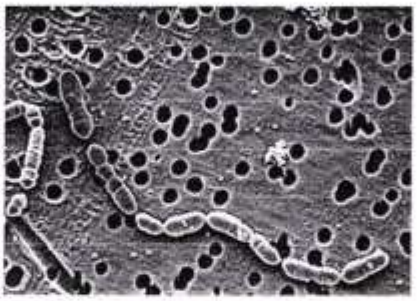
## Lactic acid bacteria



*Oenococcusoeni*

All lactic acid bacteria (LAB) involved in winemaking, whether as a positive contributor or as a source for potential faults, have the ability to produce lactic acid through the metabolism of a sugar source, as well as the metabolism of L-malic acid. Species differ in how they metabolise the available sugars in wine (both glucose and fructose, as well as the un fermentable pentoses that wine yeasts do not consume). Some bacteria species use the sugars through a homo fermentative pathway, meaning only one main end product (usually lactate) is produced, while others use hetero fermentative pathways that can create multiple end products such as carbon dioxide, ethanol, and acetate.

While only the L-isomer of lactate is produced by LAB in the conversion of malic acid, both hetero- and homo fermenters can produce D-, L- and DL-isomers of lactic from glucose which may contribute to slightly different sensory properties in the wine. While *O. oeni* is often the LAB most desired by winemakers to complete malolactic fermentation, the process is most often carried out by a variety of LAB species that dominate the must at different points during fermentations. Several factors influence which species will be dominant, including fermentation temperature, nutritional resources, the presence of sulfur dioxide, interaction with yeast and other bacteria, pH, and alcohol levels (Lactobacillus species, for example, tend to prefer higher pH and can tolerate higher alcohol levels than *O. oeni*), as well as initial inoculation (such as "wild" ferments versus an inoculation of cultured *O. oeni*).

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## Oenococcus

The genus *Oenococcus* has one main member involved in winemaking, *O. oeni*, once known as *Leuconostocoeni*. Despite having the name *Oenococcus*, under the microscope, the bacterium has a bacillus (shape) rod shape. The bacteria is a Gram-positive, facultative anaerobe that can utilize some oxygen for aerobic respiration but usually produces cellular energy through fermentation. *O. oeni* is a heterofermenter that create multiple end products from the use of glucose with D-lactic acid and carbon dioxide being produced in roughly equal amounts to either ethanol or acetate. In reductive conditions (such as near the end of alcoholic fermentation), the third end product is usually ethanol while in slightly oxidative (such as early in alcohol fermentation or in an untopped barrel), the bacteria are more likely to produce acetate.

Some *O. oeni* strains can use fructose to create mannitol (which can lead to wine fault known as mannitol taint), while many other strains can break down the amino acidarginine (which can be present in the wine that is resting on the lees after fermentation from the autolysis of dead yeast cells) into ammonia.

In addition to the hexose glucose and fructose sugars, most strains of *O. oeni* can use the residual pentose sugars left behind from yeast fermentation including L-arabinose and ribose. Only around 45% of *O. oeni* strains can ferment sucrose (the form of sugar usually added for chaptalization that gets converted by yeast into glucose and fructose).

Winemakers tend to prefer *O. oeni* for several reasons. First, the species is compatible with the main wine yeast *Saccharomyces cerevisiae*, though in cases where both MLF and alcoholic fermentation are started together, the yeast most often outcompetes the bacterium for nutritional resources which may cause a delay in the onset of malolactic fermentation. Second, most strains of *O. oeni* are tolerant to the low pH levels of wine and can usually deal with the standard alcohol levels that most wines reach by the end of fermentation. Additionally, while sulfur dioxide levels above 0.8 molecular $SO_2$ (pH dependent but roughly 35-50 ppm) will inhibit the bacteria,*O. oeni* is relatively resistant compared to other LAB. Finally, *O. oeni* tends to produce the least amount of biogenic amines (and most lactic acid[3]) among the lactic acid bacteria encountered in winemaking.

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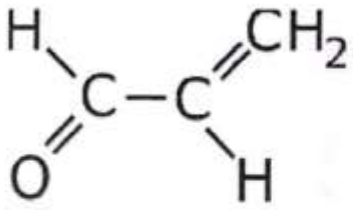
## Lactobacillus

Within the genus Lactobacillus are both heterofermentative and homofermentative species. All lactobacilli involved in winemaking are Gram-positive and microaerophilic, with most species lacking the enzyme catalase needed to protect themselves from oxidative stress.

Species of Lactobacillus that have been isolated from wine and grape must samples across the globe include L. brevis, L. buchneri, L. casei, L. curvatus, L. delbrueckii subsp. lactis, L. diolivorans, L. fermentum, L. fructivorans, L. hilgardii, L. jensenii, L. kunkeei, L. leichmannii, L. nagelii, L. paracasei, L. plantarum, and L. yamanashiensis.

Most Lactobacillus species are undesirable in winemaking with the potential of producing high levels of volatile acidity, off odors, wine haze, gassiness, and sediment that can be deposited in the bottle, especially if the wine had not been filtered. These bacteria also have the potential to create excessive amounts of lactic acid which can further influence the flavor and sensory perception of the wine. Some species, such as the so-called "ferocious Lactobacillus", have been implicated in causing sluggish or stuck fermentations, while other species, such as L. fructivorans, have been known to create a cottony mycelium-like growth on the surface of wines, nicknamed "Fresno mold" after the wine region where it was discovered.

## Pediococcus



Acrolein

Acrolein taint is a common wine fault that undesirable species of Pediococcus can introduce to wine. Acrolein can interact with various phenolic compounds, imparting a bitter taste to the wine.So far, four species from the genus Pediococcus have been isolated in wines and grape must, P. inopinatus, P. pentosaceus, P. parvulus, and P. damnosus, with the last two being the species most commonly found in wine. All Pediococcus species are Gram-positive with some species being micro-aerophilic while others utilizing mostly aerobic respiration. Under the microscope, Pediococcus often appear in pairs of pairs or tetrads which can make them identifiable. Pediococci are homofermenters, metabolizing glucose into a racemic mixture of both L- and D-lactate by glycolysis.[5] However, in the absence of glucose, some species, such as P *pentosaceus*, begin using glycerol, degrading it into pyruvate which later can be converted to diacetyl, acetate, 2,3-butanediol and other compounds that can impart unfavorable characteristics to the wine.

Most Pediococcus species are undesirable in winemaking due to the high levels of diacetyl that can be produced, as well as increased production of biogenic amines that has been

## Wine Maturation( Aging of Wine)

Wine aging refers to a group of reactions that tend to improve the taste and flavor of a wine over time. The term wine 'maturation' refers to changes in wine after fermentation and before bottling. During this period, the wine is subjected to various treatments, such as malolactic fermentation, clarification, stabilization, and bulk storage

Immediately after fermentation, wines may taste rough and fairly unpleasant. A period of maturation is required during which the tannins soften and acidity levels fall. The choice of maturation vessel and the period of time depend upon the style of wine to be produced and quality and cost factors. There are many types of maturation vessels, including stainless steel vats and wooden barrels. Some wines which are intended for early drinking, such as inexpensive or branded wines, need little or no maturation. Stainless steel is an ideal storage material because it is impermeable to gases such as oxygen.

The wine therefore is stored until required for bottling. Of course, stainless steel is ideally suited to temperature control ands used where long-term, oxygen-free storage is required, for example when inexpensive wines are held prior to being 'bottled to order'. Most high quality red wines undergo a period of barrel maturation –usually somewhere between 9 and 22 months. During the time in barrels, the wine will undergo a controlled oxygenation and absorb some oak products, including wood tannins and vanillin. Barrel size has an effect on the maturation of the wine; the smaller the barrel the quicker the maturation.

Temperature also plays an important part; the lower the temperature, the slower the maturation. When the barrels have been filled they will be tapped with a mallet to dislodge air bubbles, which rise to the surface of the wine, thus removing oxygen. During the period in barrel

HEAD
DEPARTMENT OF WINE TECHNOLOGY
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## 13. Introduction to Linux & Shell Scripting (IT)

Akole Taluka Education society's

**Agasti Arts commerce and Dadasaheb Rupwate Science college Akole**

Tal: Akole Dist; Ahmednagar 422601

**Department of - Computer Science and Management**

**Activity Report: 2021-22**

| | |
|---|---|
| **Activity Name** | **Certification Courses** |
| **Date** | **August 2021 (30 lectures )** |
| **Organized by** | **Computer Science and Management Department** |
| **Activity for** | **T. Y. Bsc (comp. sci)** |
| **Type of activity** | **Introduction to Linux and shell scripting** |
| **Objectives** | **To introduce Linux operating system and shell scripting** |
| **Brief information about activity** | **Linux fundamentals**<br>Introduction to Linux , how to download and install Linux<br>Linux vs windows , basic Linux command<br>**Shell scripting :**<br>Operating system environments ,understanding operating systems ,Shell basics |
| **Outcomes** | **Student can run Linux OS and can do shell scripting** |
| **No. of students** | **73** |
| **Report** | **73 pass/ 73 students** |
| **Attachments** | **Attendance of students** |

Head
Department of Computer Science
Agasti Arts,Comm.& Dadasaheb Rupwate Science College,Akole,Tal-Akole,Dist-Ahmednagar,422601

PRINCIPAL
AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE, AKOLE
TAL AKOLE, DIST A.NAGAR - 422 601

A

**Syllabus for**

**Value Added Course**

## Introduction to Linux and Shell Scripting

**Linux Fundamental** **(10 Lectures)**

-Introduction to Linux

-How to download and install Linux

-Linux vs Windows

- Linux Command Line: Terminal manipulation with 'cd' Command

-Basic Linux Command with Example

- File Permission in Linux with example

-Input/output redirection in Linux with example

**Shell Scripting** **(30 Lectures)**

-Operating System Environment

-Understanding Operating System

-Linux File System

-Understanding Linux Tree Hierarchy

-Shell Basics

- Understanding Shell Login/Logout files

-Shell Environment

-Redirection

-Pattern Matching

-Quoting

-Expansion

-Shell Script Programming Concept

-Sequence Flow & component of Shell Script

- Decision structure

-Decision structure theory

-Statement & operator

-Looping Structure

-Loop theory & Statement

-Function and Array

-Function Parts /Liabraries & Array

-Advanced Shell Programming

**LAB WORK:**

- Linux Command Line terminal manipulation with 'cd' Command

-Basic Linux Command with Example

- Decision structure

- Looping Structure

- Function and Array

## 14. Training on Personality Development & Soft Skill (IT)

Akole Taluka Education society's

**Agasti Arts commerce and Dadasaheb Rupwate Science college Akole**

Tal: Akole Dist; Ahmednagar 422601

**Department of - Computer Science and Management**

**Activity Report: 2021-22**

| | |
|---|---|
| **Activity Name** | **Certification Courses** |
| **Date** | **August 2021 (30 lectures )** |
| **Organized by** | **Computer Science and Management Department** |
| **Activity for** | **S. Y. Bsc (comp. sci)** |
| **Type of activity** | **Training on Personality Development & Soft Skill** |
| **Objectives** | **For Students Personality Development & improve the skills** |
| **Brief information about activity** | **Factor affecting personality development**<br>School environments & teachers peer groups<br>**Personality traits**<br>Developing positive personality traits<br>Factors that determine traits attitude<br>Benefit of positive attitude |
| **Outcomes** | **Student can improve the personality & positive attitude** |
| **No. of students** | **79** |
| **Report** | **79 pass/ 79 students** |
| **Attachments** | **Attendance of students** |

Head
Department of Computer Science
Agasti Arts,Comm.& Dadasaheb Rupwate Science College,Akole,Tal-Akole,Dist-Ahmednagar,422601

PRINCIPAL
AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE, AKOLE
TAL. AKOLE, DIST. A NAGAR - 422 601

## Value Added Course :-Training On Personality Development And Soft Skill

| Sr. No. | Contents To be Covered | Time Duration |
|---|---|---|
| UNIT 1 | **Introduction:**<br>**1.1)**Meaning and Definition of Personality.<br>**1.2)**Factors affecting Personality Development: Biological, Home Environment and Parents, School Environment and Teachers, Peer Group, Sibling Relationships and Mass Media, Cultural Factors, Spiritual Factors, Public Relations. | **4 Hours** |
| UNIT 2 | **Personality Traits.**<br>**2.1)Meaning and Definition:** Personality Traits.<br>**2.2)Developing Positive Personality Traits:**<br>**Attitude:**Factors that determine Attitude, Benefits of Positive Attitude and Consequences of negative attitude, steps to build positive attitude.<br>**2.3)Personality habits:** Meaning and concept of habits.<br>**2.4)Developing effective Habits:**Behaviour and Character.<br>**2.5)Being Proactive**/Creative and Innovative<br>**2.6)Beginning with the end in mind**<br>Putting first things first with determination, discipline, clarity and concentration.<br>Thinking Big and Winning Through: Action, Active,Facing Challenges,striving for success. | **6 Hours** |

(15)


| | | |
|---|---|---|
| UNIT 3 | **Pillars of personality development:**<br>**3.1)Introspection:** Meaning and importance, Views about Introspection, Self Introspection Skills.<br>**3.2)SelfAssessment:**Meaning, importance, types and self assessment for students.<br>**3.3)Self Appraisal:** Meaning, importance, tips for self appraisal.<br>**3.4)Self Development:**Meaning, process of self development, Self Development Techniques, Use of selfDevelopment, Individual Development Plan.<br>**3.5)Self Introduction:**Meaning, tips for effective self introduction, Self Acceptance, Awareness, Self Knowledge, belief, confidence, criticism and self examination.<br>**3.6)Defining Success**: Real or Imaginative, obstacles to success, factors and qualities that make person successful.<br>**3.7)Concept of Failure**: Reasons for failure.<br>**3.8)**Personal SWOT analysis & STAR analysis. | **6 Hours** |
| Unit 4 | **Self Esteem:**<br>**4.1)Self Concept:** Meaning,definition and development<br>**4.2)Self Esteem:** concept, significance of Self esteem, types (positive,negative),characteristics of people of high and low Self esteem, steps for enhancing positive Self esteem.<br>**4.3)**Sigmund Freud ID, EGO and SUPER EGO Concepts.<br>**4.4)**Ego Management, What ego mismanagement can do. | **4 Hours** |
| Unit 5 | **Personality Formation Structure:**<br>**5.1)**Mind mapping.<br>**5.2)**Competency mapping.<br>**5.3)**Developing interpersonal and group skills.<br>**5.4)**Building positive relationships.<br>**5.5)**Strategies of gaining power and influence.<br>**5.6)**Enhancing personality through effective communication.<br>**5.7)**Intentional Communication.<br>**5.8)** Proper dressing for varied occasions.<br>**5.9)**Effective Speech: Writing and delivering and successful negotiation.<br>5.10)Understanding body language, projecting positive body language.<br>**5.11)**Manners and etiquettes. | **10 Hours** |

## 15. Training on Processing of Wild Forest Plants (Botany)

**Akole Taluka Education Society's**

**Agasti Arts Commerce & Dadasaheb Rupwate**

**Science College Akole**

**Tal- Akole, District Ahmednagar 422 601**

**Department of Botany**

**Activity Report:- Value added certificate course 21-22**

| | |
|---|---|
| **Activity Name** | Certificate course in Training on processing of Wild Forest Plants" (online) |
| **Date** | 13/04/2022 – 27/04/2022 |
| **Organized by** | Department of Botany |
| **Activity for** | T.Y.B.Sc. Students of Botany |
| **Type of Activity** | Certificate course regarding preparation of processing of Wild Forest Plants. |
| **Objectives** | Expertise the students in preparation of Amla candy, Amla squash,Triphala Churn, *Tinospora* kadha, Enhancement of experimental skills, Hands-on Training. |
| **Brief Information about activity** | Students of Botany should be able to prepare wild fruits products on his own. Preparation of product like Amla candy, Amla squash and *Tinospora* kadha is the key for entrepreneurship and bright career in the field of fruit processing unit. Keeping these things in mind the certificate course regarding preparation of processing of wild forest plants was constructed |
| **Outcomes** | They develop interest in the course, by getting technical skills students will able to manage processing and preservation of fruits. |
| **Number of Students** | 06 |
| **Report** | Successfully completed Certificate course in Training on processing of wild forest plants. |
| **Attachment** | Photo, Attendance Students |

Head of Department / Activity

HEAD
DEPARTMENT OF BOTANY
Agasti Arts,Comm.& Dadasaheb
Rupwate Sci.College,Akole.Dist.A.Nagar

Principal,

Principal
Agasti Art's, Comm., & Dadasaheb
Rupwate Science College, Akole
Tal.Akole, Dist.Ahmednagar

(1)

**Savitribai Phule Pune University**

Akole Taluka Education Society's

**Agasti Art's Commerce & Dadasaheb Rupwate Science College,**
**Akole, Tal. Akole, Dist. Ahmednagar-422601**

Online Certificate Course 2021-22

**"Training on Processing of Wild Forest Plants"**

Akole Taluka Education Society's

**Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole**

**Tal- Akole, Dist. - Ahmednagar 422601**

**Department of Botany**

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## Certificate Course

**Outcomes:**

**1.** They develop interest in the course.

**2.** This course is to provide them with source of income and to train them for self-employed.

**3.** Visit to Herbal Industry.

**4.** After completing these course students will be able to manage processing and preservation of fruits.

**5.** This course will enable the students to prepare Triphala churn, herbal tea, medicated oil, Amla jam, Amla candy, Amla squash, Amla supari, etc.

6. By getting technical skills through the course students will be able to establish and manage a small fruit processing industry.

7. Students will be able to acquire knowledge about the squash and syrup of various wild fruits.

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Akole Taluka Education Society's

**Agasti Arts Commerce and Dadasaheb Rupawate Science College, Akole**

**Taluka Akole, District Ahmednagar.**

**Department of Botany**

**Time Table for Online Certificate Course of 2021-22**

| Sr. No | Duration | No. of Students |
|---|---|---|
| 1 | 3 weeks | 6 |

Teachers Name –

1) Course Co-ordinator - Prof. B.K.Bhangare

2) Prof. S.P. Godage

Head of Department

(Botany)

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Agasti Arts,Comm.& Dadasaheb
Rupwate Sci.College,Akole,Dist.A.Nagar

Principal

Principal
Agasti Art's, Comm., & Dadasaheb
Rupwate Science College, Akole
Tal.Akole, Dist.Ahmednagar

## Theory Syllabus Index

| Sr. No | Name | No. of Lectures |
|---|---|---|
| 1 | What is a forest? | 3 |
| 2 | Economically important aspects of medicinal plant resources: Nutraceutical and cosmeceutical | 3 |
| 3 | Economic botany | 8 |
| 4 | Preservation of Foods | 2 |

## Practical Syllabus Index

| Sr. No | Name | No. of Periods |
|---|---|---|
| 1 | Preparation of Amala candy. | 4 |
| 2 | Preparation of Amala Squash. | 4 |
| 3 | Preparation of Triphala churns. | 4 |
| 4 | Preparation of Aloe-Vera gel. | 4 |
| 5 | Preparation of Kadha from *Tinospora*(Gulvel) Stem. | 4 |

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# CHAPTER-1

## WHAT IS A FOREST?

**The forest is a complex ecosystem consisting mainly of trees that buffer the earth and support a myriad of life forms.** The trees help create a special environment which, in turn, affects the kinds of animals and plants that can exist in the forest. Trees are an important component of the environment. They clean the air, cool it on hot days, conserve heat at night, and act as excellent sound absorbers.

Plants provide a protective canopy that lessens the impact of raindrops on the soil, thereby reducing soil erosion. The layer of leaves that fall around the tree prevents runoff and allows the water to percolate into the soil. Roots help to hold the soil in place. Dead plants decompose to form humus, organic matter that holds the water and provides nutrients to the soil. Plants provide habitat to different types of organisms. Birds build their nests on the branches of trees, animals and birds live in the hollows, insects and other organisms live in various parts of the plant. They produce large quantities of oxygen and take in carbon dioxide. Transpiration from the forests affects the relative humidity and precipitation in a place.

The FAO (Food and Agriculture Organization) has defined forest as land with tree crown cover (or equivalent stocking level) of more than 10% and area of more than 0.5 hectare. The trees should be able to reach a minimum height of 5 m at maturity in situ. Forests are further subdivided into plantations and natural forests. Natural forests are forests composed mainly of indigenous trees not deliberately planted. Plantations are forest stands established by planting or seeding, or both, in the process of Afforestation or reforestation.

Forests can develop wherever the average temperature is greater than 10 °C in the warmest month and rainfall exceeds 200 mm annually. In any area having conditions above this range there exists a variety of tree species grouped into a number of forest types that are determined by the specific conditions of the environment there, including the climate, soil, geology, and biotic activity. Forests can be broadly classified into types such as the taiga (consisting of pines, spruce, etc.), the mixed temperate forests (with both coniferous and deciduous trees), the temperate forests, the sub-tropical forests, the tropical forests, and the equatorial rainforests.

The **six major groups** of forest in India are moist tropical, dry tropical, montane sub-tropical, montane temperate, sub alpine, and alpine. These are subdivided into 16 major types of forests.

India has a long history of traditional conservation and forest management practices. Under British rule, forest management systems were set in place mainly to exploit forests. Nonetheless, there were some attempts to conserve forests and meet the needs of local communities. The Indian National Forest Policy of 1894 provided the impetus to conserve India's forests wealth with the prime objectives of maintaining environmental stability and meeting the basic needs of the fringe forests user-groups. Consequently, forests were classified into four broad categories, namely forests for preservation of environmental stability, forests for providing timber supplies, forests for minor forest produce, and pasture lands. While the first two categories were declared as reserve forests, the rest were designated as protected forests and managed in the interests of the local communities

Soon after independence, rapid development and progress saw large forest tracts fragmented by roads, canals, and townships. There was an increase in the exploitation of forest wealth. In 1950 the Government of India began the annual festival of tree planting called the Vanamahotsava. Gujarat was the first state to implement it. However, it was only in the 1970s that greater impetus was given to the conservation of India's forests and wildlife. India was one of the first countries in the world to have introduced a social forestry programme to introduce trees in non-forested areas along road sides, canals, and railway lines.

**Definition**

Although the word *forest* is commonly used, there is no universally recognized precise definition, with more than 800 definitions of forest used around the world. Although a forest is usually defined by the presence of trees, under many

definitions an area completely lacking trees may still be considered a forest if it grew trees in the past, will grow trees in the future or was legally designated as a forest regardless of vegetation type.

There are three broad categories of forest definitions in use: administrative, land use, and land cover. Administrative definitions are based primarily upon the legal designations of land, and commonly bear little relationship to the vegetation growing on the land: land that is legally designated as a forest is defined as a forest even if no trees are growing on it.[10] Land use definitions are based upon the primary purpose that the land serves. For example, a forest may be defined as any land that is used primarily for production of timber. Under such a land use definition, cleared roads or infrastructure within an area used for forestry, or areas within the region that have been cleared by harvesting, disease or fire are still considered forests even if they contain no trees. Land cover definitions define forests based upon the type and density of vegetation growing on the land. Such definitions typically define a forest as an area growing trees above some threshold. These thresholds are typically the number of trees per area (density), the area of ground under the tree canopy (canopy cover) or the section of land that is occupied by the cross-section of tree trunks (basal area). Under such land cover definitions, an area of land can only be known as forest if it is growing trees. Areas that fail to meet the land cover definition may be still included under while immature trees are establishing if they are expected to meet the definition at maturity.

Under land use definitions, there is considerable variation on where the cutoff points are between a forest, woodland, and savanna. Under some definitions, forests require very high levels of tree canopy cover, from 60% to 100%, excluding savannas and woodlands in which trees have a lower canopy cover. Other definitions consider savannas to be a type of forest, and include all areas with tree canopies over 10%.

Some areas covered with trees are legally defined as agricultural areas, e.g. Norway spruce plantations in Austrian forest law when the trees are being grown as Christmas trees and below a certain height.

**Importance of Forest**

Forests provide the house for many living beings. Thus, it is one of the precious resources provided by nature to human beings. Also, the organisms that live in Forests are independent of each other. Life in Forrest is run by various factors like air, water, and sunlight. Also, there are a variety of plants that are available in

Forests. Besides this, various trees, herbs, and shrubs depend on the climate of the forests. Also, there are plants that rely on animals for processes like seed dispersal and pollination. The importance of Forrest essay provides a guide into the functions of forests and why it is important to preserve them.

There are many forests that are spread across large areas across the globe. Forests further are classified into evergreen, partly evergreen, tropical, dry, and deciduous forests. Also, these forests are based on the climatic conditions and the type of trees present in the forest. Also, Forrest compromises of the non-living components like lakes, soil, rocks, ponds, etc.

Forests are a resource to humankind that just keeps on giving. Forrest is a great help to mankind and there are benefits of forests. The benefits of the forest should be understood and proper care should be taken. So, some of the points that help in understanding the importance of forests are below.

## Benefits of Forests

Forests help in maintaining the oxygen and temperature levels of the atmosphere. Plants during photosynthesis release oxygen whereas it consumes carbon dioxide. This is the complete phenomenon that humans do. Also, forests are a huge reserve of trees and plants. Thus, they help by playing a significant role in balancing the oxygen level of the entire atmosphere.

Furthermore, forests help in maintaining the oxygen cycle on the planet Earth. The water through the soils is absorbed by plants through their roots. Thus, the release of excessive water by the plant into the atmosphere in the form of water vapor is called the transpiration process.

So, in this process water vapor from the ocean rises and gets condensed in the formation of clouds is called precipitation. Thus, it eventually leads to the formation of rainfall. So, all these processes come together to form the water cycle where the forest plays a significant role.

Forests also help in preventing the global warming levels of the Earth. The increase in the amount of carbon dioxide which is a greenhouse gas into the atmosphere

results in the greenhouse effect on Earth. Thus, it is majorly responsible for causing global warming on Earth.

Additionally, forests prevent soil erosion on Earth. There are trees that are present in the forests that bind the soil strongly from the roots. Thus, this results in soil being prevented from erosion.

**Conservation of Forest**

Forests are the bearer of life. We depend on forests for our survival. The air we breathe in, the woods we use, all are provided to us through the means of the forest. Not only this, but forests also provide us with a livelihood; it is also a habitat for wild animals. Forests are the backbone of the life forms and the life on earth sustained through them. It maintains a complex ecosystem consisting mainly of trees that support many types of life. Forests are of great use for human beings, and it needs to be conserved.

**Conservation of forest**

The act of protecting someone or something is called conservation.

Every action is a reaction of influence or inspiration. To conceptualize anything an immediate initiative has to be taken. In the case of conservation of forests, an act has been made, "Forest (conservation) Act in 1980" and its amendments were made in 1988.It is an act to provide for the conservation of forests and for matters connected in addition to that or ancillary or incidental thereto.

**Ways to the Conservation of Forest**

As mentioned earlier, forests are essential to us. Life would not be able to sustain if forests disappear. Not only this, the earth would come to an end if forests are not there to regulate it.
There are several ways through which forests can be saved. If these methods are practiced properly, the ecosystem would be balanced and can be saved

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- **Regulated and planned cutting of trees:**

A regular check should be given on the number of trees that have been cut. A planned graph should be made before cutting trees in an area. No extra trees should be harmed. In fact, a reasonable number of trees should be allowed to cut.

By a reasonable number of trees, we mean that only those trees should be harmed that are either dead or can be replaced. Planned cutting of trees helps in keeping track of the number of trees that are required to be planted so as to replace the trees that have been cut.

- **Forest fire should be controlled:**

The major loss of forests is mostly because of a forest fire. A forest fire can be of two types, first, natural fire and second, man-made fire. When the fire is spreading naturally, there should not only be a check on it but it should be controlled as well. Man-made fire disturbs the whole ecosystem leading to the increase in global warming. Forest fire in previous times was initiated by the tribal people as an outcome of Jhum (or jhoom) cultivation. But it was then practiced in a proper manner. Tribal people came back to that very land where they set on fire and grow more trees on that land.

**The idea of Afforestation:**

This should be your moral duty if you are cutting a tree, you should grow a tree to replace and compensate the environment for it. This would surely help in equalizing the number of trees.

Afforestation can help to maintain an ecological balance as the number of trees that are cut would be equal to the number of trees planted. This is a really good step towards a bright future.

Even the future generation can see trees growing and would inculcate this habit of planting trees. This can be really good for the earth as well as for humans as a moral figure

**Unnecessary and Avoidable Forest clearances should be checked:**

In the era of rapid urbanization and industrialization, clearing of forests just for the sake of making another house, building or establishing an industry is pretty

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normal. The number of trees that are taken down as a result of this is generally not even accounted for. The loss of environment and deterioration of forests happen as a result of unnecessary forest clearances. Therefore, they must be checked and avoided at any cost.

Many movements on part of people show instances that the conscience of People to protect the environment is still alive. All that we now need is to make our governments realize the catastrophe they will bring on our planet if unnecessary and Avoidable Forest clearances are not properly checked.

- **The need to value forests and use its products responsibly:**

Sometimes we start taking things for granted without realizing that nothing lasts forever and every necessity that we try to fulfill comes at a cost. With the reckless use of forest products come unavoidable harms on the forest as well as the environment. Sometimes we take cut of trees for logs but we forget to collect its limbs, foliage, etc which is then left as useless debris.

At other times we cut a tree for its branches, stump and, foliage and leave the remaining parts that are left worthless. This carelessness on the part of humans leads to irresponsible felling of trees which in turn expedites the process of extinction of our forests.

**Other important ways to conserve forests are:**

1. Passage of laws preventing the cutting of trees recklessly by the legislature.
2. Will of government to prevent Deforestation by educating people about the ill impacts of extinction of forests on our environment.
3. Granting some sort of incentive to those people or organizations who are working towards the conservation of forest.
4. Incentivizing tree plantation and promoting it on a regular basis.
5. Celebrating tree plantation as a festival and promoting it in environmental education institutions and other responsible organs of our society.
6. Promoting research for efficient and proper use of our forests.

7. Inculcating the principles to value forests through education and promoting forests like a tourist center. Promoting forests as a tourist place will help in protecting the forest as well as adding to the economy.
8. Proper surveillance of forest.
9. Proper categorization of forests.
10. Economic utilization of forest resources.
11. Prevent any kind of environmental pollution that leads to damage to our precious resources.

## Importance of Conservation of Forest

Forests are necessary elements in the earth. We need to conserve them because if forests are destroyed, animals and other creatures of the forests will come out to human settlements searching for a place to stay.

Animals will be killed more and more by humans. Environment goes into an imbalance. Humans will start fighting each other for wood and other plant materials. They will end up destroying each other for forest areas. Slowly and steadily, the carbon dioxide level rises all over the world. Rains will become scarce, heat level in the world will increase to a very high level and soon many places will become arid and dry. The snow-clad peaks of mountains, frozen rivers and the ice at the poles will all melt at a rapid pace.

Not only these, wild animals, who thought to the forest to be their home, would wander in the streets creating havoc. This can lead to the destruction of developed areas and ultimately can create a danger to the human life as some dangerous creatures such as lions, tigers and elephants can create chaos in your residential area if they are set free.

Therefore, proper management is needed for the conservation of forests else it would result in the devastation of the earth. We hope this article gave you an idea of **forest conservation**, if you have your own ideas then you can comment below and we will include them here.

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# CHAPTER-2

## ECONOMICALLY IMPORTANT ASPECTS OF MEDICINAL PLANT RESOURCES: NUTRACEUTICAL AND COSMECEUTICAL

**Nutraceuticals:** The food which provides nutrition as well as medicines to thehuman beings are called as nutraceuticals.

E.g., Amla fruit: Rich in Vitamin C (Ascorbic Acid), TANNINS, Gallic acid, Egallic acid, Dietery fibers, Calcium etc.

**Nutraceutical product of Amla fruits is:** Amla candy, Amla syrup, Amla juice, Amla supari, Amla Jam.

Products of Amla are nutritious and possess medicinal properties. These fulfill the deficiency of Vitamin C. It is very effective in Scurvy – bleeding of gums and remove toxic compounds from body protecting the enzymes from oxidative damage.

**Cosmeceuticals:** Amla fruit is mostly used as one of the major ingredients in Ayurvedic Cosmetic Formulations. These are products are very beneficial without any side effects. Some Cosmeceutical products includes

1. Brahmi Amla Hair oil herbal formulation of Brahmi, Maka and Amla fruit.
2. Herbal Shampoo: Formulation of Soapnut, Shekekai and Amla fruits
3. Natural Hair Colors and hair dyes.

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# CHAPTER-3

# ECONOMIC BOTANY

4.1 Introduction, Definition & scope of Economic Botany.
4.2 Important Medicinal plants & products.
4.3 Amla pulp & Amla candy.
4.4 Triphala churna (Amla, Hirda, Behada).
4.5 Aloe-Vera Gel.
4.6 Adulsa Cough syrup.
4.7 Tinospora cordifolic Decoction.

## 4.1 Economic:

Plants are defined as being useful eitherdirectly, as in food, or indirectly, as products we use or that enhance the environment. Economic botanists study how plants cure used as food, medicines, & in other ways.

Economic botany is the study of the relationship between people & plants. Economic botany intersects many fields including established disciplines such as forestry, genetic resources, geography, horticulture, medicine, microbiology, nutrition, pharmacognosy, Humans use plants for foods, shelter, medicines, textiles, and more plants are classified according to the products from the plants & or their use; There are cereal crops, Roots, Tuber, vegetables, Grains, legumes, sugar crops, fruits crops, oil crops, Rubber, Timber, fiber crops, medicinal crops.

## 4.2 Important medicinal plants & products:

Amedicinal plant is a plant that has similar properties as conventional pharmaceutical drugs. Human have used them throughout history to either cure symptoms from an illness. A

pharmaceutical drug is a drug that is produced is a laboratory to cure or help an illness.

(1) **Aloe vera:** In Ayurveda, aloe vera is a known as the 'king of medicinal plants.' It surely can treat a wide variety health problem.
Digestive distress
Acne
Door body immunity

(2) **Tulsi:** The strong aroma of tulsi is grod enough to keep bacterial growth. It gives for its healing properties. It gives you strength to fight stress. Treats cough, Treat indigestion, Anti-cancer, Good for hair loss, heart diseases, diabetes, etc.

(3) **Mint:** This freshly fragrant medicinal plant serves a wide variety of purpose. From enhancing your mood to treating indigestion, mint can do it all keeps the digestive system running, Boost immunity, expels cough from the body, benefits respiratory health, keeps mosquitoes away.

(4) **Fenugreek:** It is an evergreen plant & both the leaves & the seeds are useful, controls cholesterol levels, purified blood, Lever blood pressure, Beneficial for joint pains & diabetes, cholesterol controls.

(5) **Fennel or sounf:** Sounf is a flavorful& atomatic plant which is a useful for a wide variety of health problems.
Treat cough, controls cholesterol cure acidity.

(6) **Coriander:** Its leaves, seeds & powder of the seeds, everything is beneficial for your health.
Prevents the food from spoiling,
It is rich in antioxidant, cures urine retention, improves digestion, Treat acine.

(7) **Ginger:** It is the root solution for a wide variety of health problems.
Treat indigestion, controls blood pressure, Treat cold, cough, flue & asthma.
Relives cramps.

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| Sr.no | Common name | Part used | Medicinal use |
|---|---|---|---|
| 1. | Amla | Fruit | Vitamin C, Diabetes, cold, hyper, acidity. |
| 2. | Ashok | Bark flower | Menstrual pain, Diabetes. |
| 3. | Ashwagandha | Root, Leaf | Stress, Nerves, Disorder. |
| 4. | Bael | Fruit, Bark | Diarrhea, Dysentery, Constipation. |
| 5. | Brahmi | Whole plant | Nervous, Memory enhancer, Mental Disorder. |
| 6. | Giloe (Tinsopara cordifolia) | Stem | Pile, Fever, Jaundice. |
| 7. | Long pepper | Fruit, Root | Bronchitis, Cold. |
| 8. | Sandal wood | Heart wood, Oil | Skin disorder, Burning, Jaundice, Cough. |
| 9. | Sarpa Gandha | Root | Hyper tension, Insomnia. |
| 10. | Satavari | Tuber, Root | Enhance location, Generalweakness, Cough. |
| 11. | Tulsi | Leaves/seed | Cough, Cold, Bronchitis. |
| 12. | Pippermeent (mentha) | Leaves, Flower, Oil | Digestive, Pain killer. |
| 13. | Henna | Leaf, Flower, seed | Burning, Steam, Anti-inflammatory. |
| 14. | Aloe vera | Leaves | Wound healing, Skin Burning, ulcer. |
| 15. | Hirda | Seed | Wound ulcer, |

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| | | | |
|---|---|---|---|
| | | | Inflammation, Cough. |
| 16. | Behada | Seed, Bark | Cough, vomiting. |
| 17. | Neem | Rhizome | Ulcer, Hypertensive. |

## 4.3Amla pulp & Amla candy:

Amla is a popular fruit, which is being used in India since ancient times for its numerous nutritional benefits. Amla candy has been introduced which provides a sweet taste & also brings along with all the health benefits that amla has got to offer

It is a dried-up form of amla that taste a great. The Amla candy is usually made out of sugar, amla and glucose.

Ayurvedic doctors claim that amla helps in eliminating the underlying cause f serval diseases since ancient times it has been used for preparing medicines because of its medicinal benefits.

It is a potent source of iron, Vitamin C, & calcium. This super food is a storehouse of minerals & vitamins, hence should be consumed every day.

Useful benefits of Amla candy in the summer season:

1. As a coolant

   Extract the amla candy & drink it or better still eat it raw. Eating a raw amla in the summer season keeps the body cool & protect from heat boils, rash & acne.

2. Vitamin storehouse

   Amla has more Vitamin than orange juice. It reverses the aging effects by harmful UV rays. It also improves tannies that provide a shield from light & heat.

- Amla benefits for hair are numerous, ranging from preventing blandness to adding luster& color to the hair. Eat it raw or apply a paste of its on hair.
- Host of benefits for health right from prevention of heat stroke to reducing menstruation cramps & also anti-aging properties
- Vitamin C-

  Amla is a rich source of Vitamin C which is known to boost the immunity levels in the body. Vitamin C rich also contributes greatly for maintaining skin & hair.

  They would have built up an effective immune system
- Cures cough & cold-

Amla candy brings down cough & cold condition & in individuals. It is packed with rich nutrients & provides for an instant relief from cough. When Amla juice is mixed with honey & consumed, it is known to be a perfect cure for cold.

- Prevent infection-

In fact, consuming this candy can also prevent the occurrence of infection. Because this candy antibacterial properties & prevent infection.

- Good for bones-

Amla candies contain high calcium so it is very good for maintaining bone health when consumed.

## 4.4 TRIPHALA CHURNA (AMLA, HIRDA, BEHADA)

Take all the ingredient in the right amounts & dry them completely. Once all the ingredients are dried up, take them one by one & grind them into a fine powder using mortar & pestle. Sieve the powder & mix all the powdered ingredient well. Store them in all airtight container.

**Benefits of Triphala churna:**

1. Helpful in weight loss:

You can take a tablespoon of this churna three times a day with warm water to protect yourself from obesity issues. It is also effective in reducing excess belly fat.

2. Anti-Inflammatory properties:

Triphala contains a number of antioxidants that perform protective functions in the body.

3. May protect Against certain cancers.
4. May protect Against Dental Diseases & cavities.

## 4.5 Aloe-vera Gel: -

It is best known for treating skin injuries, but also has several other beneficial effects on health. Aloe vera is a popular medicinal plant that has medicinal plant that has been used for thousands of years.

It is best known for treating skin injuries, but also has several other beneficial effects on health. It contains healthful compounds Antioxidants & antibacterial properties, accelerate healing, reduces dental

plaque, Helps treat canker sores, reduces constipation, improve the skin, lowers blood sugar.

1. Contains healthful plant compounds:
   It is widely used in the cosmetic, pharmaceutical & food industries. The gel contains most of the bioactive compounds in the plant, including vitamins, minerals, amino acids & antioxidants.
2. Accelerates the healing & burn:
   It has long been known as a treatment for sores, particularly burns, including sunburns.
3. Reduces dental plaque:
   Aloe vera mouth rinse was found to be just as effective as chlorhexidine in reducing dental plaque.
4. Helps treat canker sores:
   Aloe vera treatment can accelerate the healingof mouth ulcers.
5. May improve skin & prevent wrinkles.
6. Lowers blood sugar levels.

**4.6 Adulsa cough- syrup: -**

Adulsa compound is an ayurvedic medicine cough syrup for the treatment of dry and productive cough, whooping cough & other throat infections,
It is used for Asthma
It is used for bronchitis& ulcer.
Adulsa cough syrup is used for the temporary relief of cough, sneezing or runny nose due to the common cold or other upper respiratory allergies.

**4.7*TINOSPORA CORDIFOLIA* DECOCTION:**

*Tinospora cordifolia* is a shrub. It's root, stems & leaves are used in Ayurvedic medicine. *Tinospora cordifoli* is used for diabetes, high cholesterol & to boost the immune system.

The whole plant is used medicinally however; the stem is approved for use in medicine. This is due to higher alkaloid content in the stems than in the leaves. This plant has been known to possess antioxidant, antiallergic, anti-inflammatory, diabetes & several other properties also.

The plant mainly contains alkaloids, glycosides, steroids.

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CHAPTER-4

# PRESERVATION OF FOODS

The variety of methods for food preservation which can be employed depends upon the food and what can be done with it without altering its desirable character.

The various methods employed for the preservation of food involve the use of

1. Low temperature
2. High temperature
3. Dehydration
4. High osmotic pressure
5. Chemical preservatives and
6. Radiations.

Asepsis is important in the successful application of any preservation procedure. Aseptic handling prevents the entrance, and effects the removal of undesirable microorganisms.

## 1. Low Temperature: -

Temperature around 0□ and lower retard the growth and metabolic activities of microorganisms and thus prevents the microbial spoilage of foods. Two methods are employed in the preservation of foods but cold temperature;**1) chilling and 2) freezing**

In **chilling**method, the temperature is kept just above the freezing point. These is the condition encountered in household refrigerator chilling condition retards but does not prevent multiplication of all microorganisms.

**Frozen** foods can be stored for several months. Before freezing the foods are stored, trimmed, washed and blanched. Blanching consists of immersing the foods in boiling water or exposing it to live steam for few minutes. Blanching destroys most of microorganisms and inactivates enzymes that would alter the product even at low temperatures. The food immediately packed and frozen.

## 2. Temperature: -

High temperature is most commonly employed for the preservation of food. Heat is used to effect either a complete sterilization or a reduction in the number of microorganisms present.

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Boiling and pasteurization are two principal processes by which partial killing is used to decrease the microbial load.

**3.Dehydration: -**

This is essentially based upon removing one of the principal factors required for life, namely water. The removal of water from foods by drying in the sun and air or with applied heat causes dehydration.

**Ex**. Preservation of fruits, vegetables, meat, etc.

**4.High osmotic pressure: -**

Some foods are protected from microbial attack by the presence of high salt or sugar concentration. Salt is widely used to preserve certain foods.Preservation of jellies, jams, syrup, and honey is because of high sugar content.

**5. Chemical preservatives: -**

Some foods are preserved by the addition of chemicals or preservatives. If they are added during the storage period and are removed before the food is consumed, they are harmless. Several organic acids and their salts are common preservatives. These have marked micro biostatic and microbicidal action. Some of these are added directly and some others are developed during the fermentation of foods.Benzoic acid And Benzoate Are Used for The Preservation of Vegetable.Salicylic Acid and Salicylates Are Used as Preservatives of Fruits and Vegetables.Sorbic And Propionic Acids Are Used to inhibitmould growth in bread.Formaldehyde was formelderly used as a preservation of milk.Boric acid prevents the growth of bacteria and has been used to preserve butter.Sulphureous acid and sulphites are added to wines as preservatives.Sulphur dioxide has a bleaching effect desired in some fruits,and also suppresses the growth of yeast and moulds.It is used as a gas to treat drying fruits and is also used in molasses.

**6. Radiations: -**

The ancient method of preserving certain foods by drying in the sun owed part of its success to ultraviolet irradiation.However, only the surfaces of foods could be expected to be sterilized by this method.Cold Storage rooms of food processing plants are equipped with germicidal lamps.This permits

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longer periods of spoilage free storage.High Energy radiation in the form of electron beams or gamma rays are being studied as sterilizing agents for foods gamma rays may be artificially made from radioactive materials such as cobalt 60. they have good penetration,being effective to a depth of about 15 cm in most food. These rays have been used for the preservation of fresh perishable foods in paper or plastic bags.

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**Practical No: - 01**

Aim:- Preparation of Amala candy.

Requirement:- Food Drier, Stirrer, knife, sieve, Gas Stove, Pan, Spoon, Packing Jar/ Pouch, Aluminum foil etc.

Material & Chemical:- 1 kg Amala fruit

1 kg Sugar

Water

Preservative (Sodium benzoate)

Procedure: -

1) Take 1 kg of fresh Amala Fruit wash it thoroughly with normal water.
2) Boiled it with normal water for 10 min.
3) Re-boiled it with water along with preservative [i.e. sodium benzoate 600 mg/l] for 5 min.
4) Cooling it.
5) Fruits are cutting into pieces.
6) Cut pieces are boiled with Sugar (1:1)
7) By continuous stirring with low flame.
8) Keep it for 48 hour in cool & dry place.
9) After 48 hour drain out excess sugar syrup.
10) Wash it with Luke warm water and dry it.
11) Dry completely ready for Packing/Marketing.

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**Practical No: - 02**

Aim: -Preparation of Amala Squash.

Requirement:- Pulper machine, Pulveriser, Gas Stove, boiling set, Kisani, Cloths.

Material & Chemical:- 1 kg Amala fruit, Sodium benzoate 600mg.

water.

Procedure: -

1) Take 1 kg of fresh Amala Fruit wash it thoroughly with normal water.
2) Boiled it with normal water for 5 min.
3) Cool it.
4)Fruits are cutting into small pieces. OR slice it (kisani)
5) Crushed it completely by pulveriser.
6) Filter the pulp by Muslin cloth.
7) Filter is treated as Amala Squash.
8) Boiled it with 45% Sugar with PreservativeSodium benzoate 600mg/kg.
9) The resulted product is called concentrated Amala Squash.
10) Boiled with for further Squash.

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**Practical No: - 03**

Aim: - Preparation of Triphala Churn.

Requirement:- Grinder, Mixer, food grade, plastic pouch, sealing machine.

Material & Chemical:- Dried Fruit (Amala, Hirada, Behada)

Procedure: -

1) Washing the dried Fruit.
2) Deep its hot water for 2-3 min.
3) Dried the Fruits.
4)Cut into pieces
5) Cut pieces into Grinder/ mixer separately.
6) Powder forms of these fruit are mixed together in equal amount (i.e. 1:1:1)
7) Resulted product is treated as Triphala churn.
8) Product ready for packing& Marketing.

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**Practical No: - 04**

Aim: - Preparation of Aloe vera gel.

Requirement: - Food Drier, Stirrer, knife, sieve, Homogenizer, Centrifuge, Filter, sparkler filter, etc

Material & Chemical: -Aloe vera leaf

Distilled water

Thickness ingredient

Procedure: -

1) Prepare a fresh aloe vera juice.
2) Take this clear juice in tank.
3) Add to it thickness ingredient.
4) After addition, kept this juice in neutralization process i.e., cold process.
5) After complete the cold process, stabilize this juice in 24 hours.
6) After stabilization we get an Aloevera gel.
7) Ready for Packing/Marketing.

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**Practical No: - 05**

Aim:Preparation of Kahada from *Tinospora* (Gul-vel) Stem

Important Note:*Don't take the gulvel plant grown on poisonous plants like Euphorbia tricauli (Sher) or any other poisonous plant since such plant contains poisonous chemicals.*

Requirements:*Tinospora cordifolia* (Gul-vel/Guduchi) Stem, Honey, Water, Mixer, Amber coloured glass bottles (250 ml) Heating assembly etc.

Procedure:

1) *Tinospora cordifolia* (Gul-vel/Guduchi) plant grown on *Azadirachta indica* (Neem) plant is one of the best plant materials for preparation of Kahada.
2) Matured stem of Gul-vel grown on Neem plant is harvested (10 grams) fresh material for preparation of Khada
3) The fresh stem is washed in clean water
4) It is cut into small pieces (5-6) centimeters long
5) The stem pieces are superficially peeled with knife by removing the outer layer.
6) These are further cut into small pieces and grind in mixer
7) The macerated paste is taken in cooking pan along with one liter of water
8) The extraction in the pan is boiled on medium gas flame for certain time till the volume of extract becomes 200ml (1/5 of original volume)

9) The extract is further sieved with the help of muslin cloth. Such concentrated extract is called as Kahada or Decoction.

10) After cooling the extraction is filled in sterile amber coloured glass bottles and the bottles are sealed and labeled. The khada should be used within a month.

Medication: The Kadaha is taken orally in the ratio - 5ml of Kahada: 2 drops of honey early in the morning before breakfast.

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HEAD
DEPARTMENT OF BOTANY
Agasti Arts,Comm.& Dadasaheb
Rupwate Sci.College,Akole,Dist.A.Nagar

## 16. Marathi Grammar (Marathi)

Akole Taluka Education Society's

Agasti Arts , Commerce and Dadasaheb Rupwate Science College Akole

Tal- Akole, Dist- Ahmednagar 422601

Department Marathi
Activity Report: २०२१-२२

| | |
|---|---|
| Activity Name | मराठी प्रमाणपत्र कार्यशाळा |
| Date | १ फेब्रुवारी ते १० मार्च २०२२ |
| Organized by | मराठी विभाग |
| Activity for | विद्यार्थी |
| Type of Activity | मराठी प्रमाणपत्र कार्यशाळा |
| Objectives | १. मराठी व्याकरणविषयी आवड निर्माण करणे. ओळख करणे.<br>२. विद्यार्थ्यांना नवनवीन साहित्यिकांची<br>३. व्याकरणाचे नियम शिकविणे. |
| Brief information about activity | अगस्ती कला, वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालयातील मराठी विभागाच्या वतीने ०१/०२/२०२२ १०/०३/२०२२ या काळात मराठी प्रमाणपत्र कार्यशाळा घेण्यात आली |
| Outcomes | १.मराठी व्याकरणविषयी आवड निर्माण झाली.<br>२. विद्यार्थ्यांना नवनवीन साहित्यिकाची ओळख झाली.-<br>३. व्याकरणाचे नियम माहित झाले. |
| No. of Students | २१७ |
| Analysis of Feedback | उत्तम प्रतिसाद |
| Report | अहवाल प्रत |
| Attachments | Photo, Attendance of Student & Teachers, News/ News Cutting Feedback Form. |

Head Department/Activity
डॉ.सौ.रंजना म.कदम
(मराठी विभाग प्रमुख)
अगस्ति कला,वाणिज्य व दादासाहेब रुपवते
विज्ञान महाविद्यालय,अकोले,जि.अ.नगर

AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCI. EST. 1974 TAL. AKOLE DIST. AHMEDNAGAR

Principal
प्राचार्य
अगस्ति कला, वाणिज्य व दादासाहेब रुपवते
विज्ञान महाविद्यालय, अकोले, जि.अहमदनगर - ४२२ ६०१

अकोले तालुका एज्युकेशन सोसायटीचे

**अगस्ति कला, वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालय, अकोले,**

**मराठी विभाग**

**विषय : मराठी व्याकरण अभ्यासक्रम (प्रमाणपत्र कोर्स )**

**(२०२१-२२)**

(तासिका ४०)

**उद्दिष्टये :-**

**१) मराठी भाषेवर प्रभुत्व प्राप्त करण्यासाठी विद्यार्थ्यांना व्याकरणाचे मुद्दे समजून देणे.**

**२) मराठी व्याकरणाच्या अधारे या भाषेचे वेगळेपण, वैशिष्टये स्वभाव, उच्चारण इ. अनेक घटकांची माहिती करुन देणे.**

**३) विद्यार्थ्यामधील व्याकरणाविषयीची मनातील भिती व शंका दूर करणे.**

**१) वर्णविचार:** ( तासिका ४)

१) वर्णमाला २) वर्णाचे प्रकार ३) स्वरांचे प्रकार ४) व्यंजनांचे प्रकार ५) वर्णाची उच्चारस्थाने.

**२) संधी :** ( तासिका ४)

१) स्वरसंधी २) व्यंजनसंधी ३) विसर्गसंधी ४) मराठीचे विशेष संधी

**३) शब्दविचार :** (तासिका १०)

१) शब्दविचार २) शब्द आणि पद ३) नामे ४) सामान्यनाम ५) विशेषण ६) क्रियापद ७) क्रियाविशेषण (८) शब्दयोगी ९) उभयान्वयी १० ) केवलप्रयोगी.

**४) समास:** (तासिका ४)

समासाचे प्रकार : १) अव्ययीभाव २) तत्पुरुष समास ३) व्दंद समास ४) बहुव्रीही समास

**५) वृत्ते :** (तासिका ८)

१) गद्य व पद्य यातील फरक २) गणलेखनाची पध्दत ३) मात्रावृत्ते उदाहरणे व लक्षणे ४) पद्यावर्तनी अर्ध समजाती ५) पद्यावर्तनी विषमजाती ६) भृंगावर्तनी समजाती ७) छंद ८) मुक्तछंद

**६) अलंकार :** (तासिका १०)

१. शब्दालंकार अनुप्रास, यमक, श्लेष

२. अर्थालंकार उपमा

३. उत्प्रेक्षा: अपन्हुती, रूपक, व्यतिरेक, अनन्वय, भ्रांतिमान, ससंदेह, अतिशयोक्ती, दृष्टांत अर्थान्तरन्यास, स्वभावोक्ती, अन्योक्ती, पर्यायोक्ती, विरोधाभास,असंगती, सार, व्याजस्तुती, व्याजोक्ती, चेतनगुणोक्ती

Dr. V.B. Kale

AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE EST. 1974 TAL. AKOLE DISTRICT AHEDNAGAR 422601

**डॉ.सौ.रंजना म.कदम**
**(मराठी विभाग प्रमुख)**
**अगस्ति कला,वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालय,अकोले,जि.अ.नगर**

## 17. Dairy Chemistry (Chemistry)

Akole Taluka Education Society's,
Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole
Tal- Akole, Dist- Ahmednagar 422601

Department of Chemistry

**Activity Report (2021-22)**

| | |
|---|---|
| **Activity Name** | Certificate Course in Dairy Chemistry (CCDC:2021-22) |
| **Date** | 01/04/2022 to 30 May 2022 |
| **Organized by** | Department of Chemistry, Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole.422601 |
| **Activity for** | T. Y. B. Sc. (Chemistry) Students |
| **Type of Activity** | Certificate Course (Online) |
| **pObjectives** | 1. Knowing importance of the subject from the point of rural economy.<br>2. Understanding the Microbiology of the milk, various preservation and adulterants, various milk proteins and their role for the human body. |
| **Outcomes** | 1. Students will be able to use their knowledge of the chemistry of dairy components.<br>2. Students will also able to describe the composition of milk, identify the approximate content of individual types present and describe physicochemical characteristics of the main components of the milk. |
| **No. of Students** | 94 |
| **Analysis of Feedback** | In feedback, students have mentioned that the course content met with their expectation. They have exposed to new knowledge and practices of the chemistry of dairy components. |
| **Attachments** | Syllabus, Student list, Attendance of Student & Teachers, Question paper, Mark list, Certificate, Feedback. |

**Head of Department/Activity,**
Head
Department of Chemistry
Agasti Arts,Comm. & Dadasaheb Rupwate
Science College,Akole,Dist.A'Nagar

**Principal**
PRINCIPAL
AGASTI ARTS, COMM. & DADASAHEB
RUPWATE SCIENCE COLLEGE, AKOLE
TAL AKOLE, DIST A NAGAR - 422 601

SAVITRIBAI PHULE PUNE UNIVERSITY

# CERTIFICATE COURSE IN DAIRY CHEMISTRY

Organized by

## Department of Chemistry

Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole
Tal.- Akole, Dist.- Ahmednagar 422601

2021 – 2022

साहसे श्रीः प्रतिवसति।

Akole Taluka Education Society's

Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole.

Tal: Akole, Dist: Ahmednagar (422 601)

DEPARTMENT OF CHEMISTRY

## Certificate Course in Dairy Chemistry (CCDC 2021-22)

**Objectives:**

**A) Learning Objectives of Dairy Chemistry**

The students are expected to study "Dairy Chemistry" in view of-

1. Knowing importance of the subject from the point of rural economy.
2. Knowing the composition of milk, its food & nutritive value.
3. Understanding the Microbiology of the milk.
4. Understanding various preservation and adulterants, various milk proteins and their role for the human body.
5. Knowing various milk products, their composition, manufacture and uses.

**Prior Knowledge:**

Students should be familiar with the Milk components, their properties as well as basic milk processing operations.

A brief review of some of these concepts will be done, especially in the context of Dairy Chemistry.

**Learning Outcomes:**

Students will also able to describe the composition of milk, identify the approximate content of individual types present and describe physicochemical characteristics of the main components. Student will be able to explain how dairy products (such as fluid milk, butter, and cheese, ice-cream) are made and the key functions of the processing steps involved.

Students will be able to use their knowledge of the chemistry of dairy components (proteins, fats, lactose, salts) to evaluate the impact of processing conditions (e.g. heat, pH) on milk and dairy products.

**Recommended References:**

**A) Dairy Chemistry:**


1. Outline of Dairy Technology- Oxford University press By- Sukumar De. (Edition-1983)
2. Dairy Chemistry and Animal Nutrition- M.M. Rai, Kalyani, Publishers, New Delhi 3rd Edition, 1980
3. Fundamentals of Dairy Chemistry- B.H. Webb, A.H. Hohsson, J.A. Alford, CBB Publishers and Distributors.
4. Milk and Milk Products- C.H. Eckles, H. Macy, Tata McGraw Hikk Publishing Company Ltd.
5. Chemistry and Testing of Dairy Products- H.V. Athertion, J.A. New Lander, CBS, Publishers and Distributors.


**Course Coordinator:**


Prof. M. D. Banait contact: +91 9423164551
E-mail: mahendrabanait@gmail.com


**Instructors:**


1) Prof. Sandesh Dasharath Kasar, contact: +91 9404696296
e-mail: sandeshkasar2012@gmail.com
2) Prof. Sadhana Madhav Bangal, contact: +91 9404696295
e-mail: sandeshkasar2012@gmail.com
3) Prof. Pankaj Haribhau Naikwadi, contact: +91 9403598115
e-mail: pankajnaikwadi2016@gmail.com
4) Prof. Arun Lahanu Wakchaure, contact: +91 7798095087
e-mail: arunam23.19@gmail.com
5) Prof. Premkumar Ramchandra Mali, contact: +91 8308990954
e-mail: premkumarmali@gmail.com
6) Prof. Suresh Ganpat Muthe, contact: +91 9921431384
e-mail: sureshmuthe1521@gmail.com


**Course format and requirements:**

Apart from regular lectures we will conduct 40 theory lectures for dairy chemistry (04topics) & 10 practicals, which are correlated with theory knowledge.

**The marks will be distributed as follows:**

Theory Exam: 30 Marks (in the month of June2022)
Practical Exam: 20 Marks (in the month of June2022)
Total: 50 Marks

**Grading system:**

O: 90-100%
A: 80-89%
B: 70-79%
C: 60-69%
D: 50-59%
E: 40-49%
F: < 39%

साहसे श्रीः प्रतिवसति|

Akole Taluka Education Society's

Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole. Tal: Akole, Dist: Ahmednagar (422 601)

DEPARTMENT OF CHEMISTRY

**Certificate Course in Dairy Chemistry (CCDC 2021-22)**

## Dairy Chemistry

### Learning Objectives of Dairy Chemistry

The students are expected to study "Dairy Chemistry" in view of-

1. Knowing importance of the subject from the point of rural economy.
2. Knowing the composition of milk, its food & nutritive value.
3. Understanding the Microbiology of the milk.
4. Understanding various preservation and adulterants, various milk proteins and their role for the human body.
5. Knowing various milk products, their composition, manufacture and uses.

## Syllabus of Certificate Course in Dairy Chemistry (40 Lectures)
## A) Dairy Chemistry

**Chapter 1) Market Milk** **(06 L)**

Introduction, Definition, constituents of milk of different species such as cow, buffalo, goat, etc., Chemical composition of milk of Indian breed and foreign breeds of cow, factor affecting composition of milk, characteristics of milk of different mammals, physicochemical properties of milk, acidity, pH, density, specific gravity, color and flavor of milk, food and nutritive value of milk. Microbiology of milk, growth of microorganism, stages of growth, product of microbial growth, destruction of microorganisms growth.

**Chapter 2) Milk Adulteration & Preservatives** **(06 L)**

1. Detection of Adulterants- Introduction, Modes of Adulteration and their detection such as skimming, addition of separated milk, skim milk, Water, Starch and cane sugar.
2. Common Preservative- Introduction, Common preservatives are used.

**Chapter 3) Milk Products (Cream, Butter, Cheese and Ice-Cream)** **(08 L)**

**A. Cream**- Definition, Classification, Composition, Food & Nutritive value, Physicochemical properties, Manufacture and uses of Cream.

**B. Butter**- Definition, Classification, Composition, Food & Nutritive value, Physicochemical properties, Manufacture and uses of Butter selection of milk/cream. Preheating of milk, Separating of milk, Neutralization of cream, Pasteurization of cream, Cooking & ageing, repending of cream, salting of butter, washing of butter, packaging & Storage, use of butter.

**C. Cheese**- Definition, Classification, Food & nutritive value, properties, Manufacture and uses of cheese.

**D. Ice-cream**- Definition, Classification, Composition, Food & Nutritive value, Manufacture, packing, hardening & Storage, uses of Ice-cream.

*** Reference Books:**

1) A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan
2) Outline of Dairy Technology- Oxfored University press By- Sukumar De. (Edition-1983)
3) Dairy Chemistry and Animal Nutrition- M.M. Rai, Kalyani, Publishers, New Delhi 3rd Edition, 1980
4) Fundamentals of Dairy Chemistry- B.H. Webb, A.H. Hohsson, J.A. Alford, CBB Publishers and Distributors.

5) Milk and Milk Products- C.H. Eckles, H. Macy, Tata McGraw Hikk Publishing Company Ltd.

6) Chemistry and Testing of Dairy Products- H.V. Athertion, J.A. New Lander, CBS, Publishers and Distributors.

7) Dairy Microbiology, Dr. K.C. MahantaOmsons Publication New Delhi.

**Dairy Chemistry (Practicals)**

1) Determination of pH & electrical conductivity of soil & total soluble salts.
2) Determination of calcium carbonate in soil by rapid titration method.
3) Determination of gypsum requirement of alkaline soil.
4) Determination of pH & electrical conductivity of irrigation water samples.
5) Determination of total hardness of water.
6) Determination of copper from copper fungicide.
7) Determination of specific gravity of milk by using specific gravity bottle.
8) Determination of casein in milk by Pynes formal titration method & calculation of the percentage of protein in milk.
9) Determination of saponification value of ghee.
10) Determination of preservatives in milk a) boric acid b) formaldehyde

***Reference Book:**

**1)** A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan.

## 18. Basic of RS and GNSS (IIRS)

**Module- 2:** Global Navigation Satellite System
**Module/ Course Coordinator:** Dr. Ashutosh Bhardwaj

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 14/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Introduction to GPS and GNSS<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 15/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | GPS receivers, processing methods, errors and accuracy<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 17/09/2020 | Thursdays | 1600-1700 hrs<br>1700-1730 hrs | Satellites based Augmentation systems & GPS Aided and GEO Augmented Navigation (GAGAN)<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 18/09/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | GPS signal characteristics, Data formats (broadcast, precise ephemeris)<br>Interactive Session | Dr. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 21/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Indian Regional Navigation Satellite System (IRNSS)<br>Interactive Session | Dr. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 22/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | DGPS demonstration (Pre-recorded followed by live query session)<br>Interactive Session | Offline<br>Dr. Ashutosh Bhardwaj |
| 24/09/2020 | Thursdays | 1600-1700 hrs<br>1700-1730 hrs | Advance GNSS processing<br>Interactive Session | Shri Suresh Kannaujiya |
| 25/09/2020 | Friday | **Paned Discussion** | | |

**Module/Course Name**- RS & GIS Applications
**Module/ Course Coordinator:** Shri C.M. Bhatt

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 02/11/2020 | Monday | 1600-1730 hrs | Applications of Remote Sensing & other Geospatial Technologies in Natural Resources Management, Development & Governance | Dr. S. K Srivastav |
| 03/11/2020 | Tuesday | 1600-1730 hrs | Remote Sensing Applications in Agriculture-Crop Inventory & Yield Forecasting | Dr. N.R. Patel |
| 05/11/2020 | Wednesday | 1600-1730 hrs | RS & GIS for Coastal Zone Management | Dr. D. Mitra |
| 06/11/2020 | Thursdays | 1600-1730 hrs | Remote Sensing Applications for Geological studies | Dr. R.S. Chatterjee |
| 09/11/2020 | Monday | 1600-1730 hrs | Space-enabled Products & Services for Disaster Management :Indian Initiatives | Dr. P.K.C.Ray |
| 10/11/2020 | Tuesday | 1600-1730 hrs | RS & GIS Application in Urban & Regional Planning | Shri. Pramod Kumar |
| 11/11/2020 | Wednesday | 1600-1730 hrs | Remote Sensing Application to Atmospheric & Marine Environment | Dr. A.K Mishra |
| 12/11/2020 | Thursdays | 1600-1730 hrs | RS & GIS Applications in Forestry and Ecology | Dr. Hitendra Padalia |
| 16/11/2020 | Monday | 1600 – 1730 hrs | RS applications for Planetary Studies | Dr. Prakash Chauhan |
| 17/11/2020 | Tuesday | 1600-1730 hrs | RS & GIS Applications to Water Resources Management | Dr. S.P Aggarwal |
| 18/11/2020 | Wednesday | 1600-1730 hrs | Geospatial Technology for climate change studies | Dr. Arijit Roy |
| 19/11/2020 | Thursdays | 1600-1730 hrs | Remote Sensing and GIS Applications in Soil Resource Assessment | Dr. Suresh Kumar |
| 20/11/2020 | Friday | 1600-1730 hrs | Panel Discussion Module-3 | All speakers |

Note: Details about the course, examination and latest schedule will be updated on below link:
https://www.iirs.gov.in/EDUSAT-News

## 19. Vermicompost Technology (Zoology)

Akole Taluka Education Society's

**Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole**

Tal- Akole, Dist- Ahmednagar 422601

Department of Zoology

Activity Report 2020-21

| | |
|---|---|
| Activity Name | Certificate Course in Vermicompost Technology |
| Date | - |
| Organized by | Department of Zoology |
| Activity for | B.Sc. Students |
| Type of Activity | Certificate Course |
| Objectives | Students will be able to compost in a limited space and describe the decomposing process |
| Brief information about activity | Recycling trash has become essential in today's society in order to protect our environment and maintain our health. So let's prepare for the certificate course in Vermicompost, which is also known as the "Four R's" of recycling, reduce, reuse, recycle, and restore. |
| Outcomes | |
| No. of Students | 50 |
| Analysis of Feedback | - |
| Report | - |
| Attachments | Photo, Attendance of Student & Teachers, News/ News Cutting, Feedback Form. |
| Other Information | |

Head of Department/Activity

Head
Department Of Zoology
Arts,Com.& Dadasaheb Rupwate
Sci.College,Akole,Dist.A.Nagar

Co-ordinator
Internal Quality Assurance Cell
Arts,Commerce & Dadasaheb
Rupwate Science College,Akole
Dist.Ahmednagar (422601)

Principal

AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE, AKOLE TAL. AKOLE. DIST. A NAGAR - 422 601

# DEPARTMENT OF ZOOLOGY

## CERTIFICATE COURSE IN VERMICOMPOST TECHNOLOGY

Vermicomposting truly is nature's great disappearing act! Aristotle once said, *"Worms are the Intestines of the Earth"*. Using worms to convert decomposing food waste into nutrient-rich fertilizer is simple, inexpensive, energy efficient, and a great way to teach students to become life-long recyclers. Vermicomposting technology is known throughout the world, albeit in limited areas. It may be considered a widely spread, though not necessarily popular technology. As a process for handling organic residuals, it represents an alternative approach in waste management, in as much as the material is neither land filled nor burned but is considered a resource that may be recycled. In this sense, vermicomposting is compatible with sound environmental principles that value conservation of resources and sustainable practices. Vermicomposting is akin to composting in that similar feedstock-organic residuals -are used. Both systems utilize microbial activity to break down organic matter in the moist, aerobic environment. Vermicomposting is however faster, produces fewer odors and produces a superior product. But vermicomposting requires greater surface area, more moisture, and is susceptible to heat, high salt levels, high ammonia levels, and substances that may be toxic to earthworms. Of the 4400 identified earthworm species, specific species of litter dwelling earthworms are required for this purpose. Vermicomposting in developing countries could prove to be useful in many instances. Where accumulation of food wastes, paper, cardboard, agriculture waste, manures and biosolids is problematic, composting and vermicomposting offer potential to turn waste material into a valuable soil amendment. In the past ten years an organization in India has promoted over 3,000 farmers and institutions to switch from conventional chemicals to the organic fertilizer, vermicompost. Vermiculture enables any scale or size of operation. Vermicompost is being used in over 1, 00,000 hectare cultivated area in almost all agro-climatic zones in India.

Noted for its ability to increase organic matter and trace minerals in soil, vermiculture has been the primary focus at Maharashtra Agricultural Bioteks in India, an organization that has initiated both commercial and educational ventures to promote vermiculture. In 1985, Maharashtra Agricultural Bioteks was formed and established a small plant to manufacture vermicompost from agricultural waste. Those involved believed that a successful commercial venture based on regenerative principles might convince others to

adapt sustainable practices.The organization currently produces 5,000 tons of vermicompost annually. Its real achievement, however, has been in raising awareness among farmers, researchers and policy makers in India about regenerative food production methods. The group is directly responsible for 2,000 farmers and horticulturalists adopting vermicomposting. These converts have begun secondary dissemination of the principles they were taught.

In 1991-1992, Maharashtra Bioteks and the India Department of Science And Technology promoted the adoption of vermicompost technology in 13 states in India. The group has also established a vermicompost unit with Chitrakoot Gramodaya University, Madhya Pradesh which produces five tons of vermicompost per month.Educational institutes in Maharashtra & other states have started conducting certificate/diploma/regular courses on vermiculture, vermiculture biotechnology, and vermiculture & vermicompost technology. The duration of courses ranges from 10 days to six months. The Department of Zoology in collaboration with Geography & Botany Departments running this course.

**Aims& Objective:**

- Students will be able to compost in a limited space and describe the decomposing process.
- The interested students will get the knowledge of composting,
- Students will get the employment,
- They can generate employments,
- They will also turn towards organic farming,
- Will help to maintain the environment pollution free and
- Will get the knowledge of biodiversity of local earthworms.

➢ The detail of the course is as follows:

**Focus:**

To convert unwanted, organic matter, particularly food scraps and paper into fertile soil.

**Name of the course: Certificate Course in Vermicompost technology**

- **Level:** Certificate
- **Stream:** Science or any stream
- **Subject:** Vermiculture/ vermicompost

**Eligibility Criteria**: 10+2

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**Duration:** 3.5months i.e.105 days

**Language:** English/Marathi

**Intake:** 20 seats

**Fees: Rs.200/**

**Selection /Admission Criteria**: First come first serve

**Attendance:** 90%

**Lecture/practical timing:** 3.30 PM to 4.30 PM

**Academic calendar for the course:** Five days in a week (4days theory periods & 1day practical)

**Available infrastructure**: Well equipped laboratory, small & large scale vermiculture units

**Teaching Staff**: Qualified, Experienced Guest Lecturers & eminent professors will be invited.
**Non teaching staff**: 1lab assistant & 2 lab attendants.

**Examination structure & schedule:**

At the end of course the examination will be conducted. Its notice & time table will be displayed for communication to the students at least before 15 days of the date of examination.

1. Course VT-01Theory paper (objective/short answer type) = 50marks, Two hours duration.
2. Course VT-02 Practical paper =50 marks, two hours duration

Marking scheme & Award of grades: Average of the marks obtained in each paper will be calculated as: 50+50+100/2 = 50;

i) 8-10 marks = 1point, C' grade – pass;
ii) 10-20 marks = 2 points, B' grade;

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iii) 20-30 marks = 3points, B+ grade;
iv) 30-40 marks =4points, A' grade;
v) 40-50 marks =5points, A+ grade

Award of Certificate carrying grades: after successful completion of course colorful certificate indicating grade will be awarded to the candidate.

**Reservation:** NA

**Course Content: Syllabus/Program:**

**SCHEME**

Vermicompost technology as one of the Certificate Course at undergraduate level

| | |
|---|---|
| **Credits to be earned** | **:04** |
| Theory paper | :03credits |
| Practical course/paper | :01 |

Proposed distribution of the course structure

| Sr.No. | Code | Title of the paper | Credit pattern in L:T:P | Credit value |
|---|---|---|---|---|
| 1 | VTT - 01 | Vermicompost technology | 3:0:0 | 03 |
| 2 | VTP - 02 | Vermicompost technology related to theory (VTP – 01) | 0:0:1 | 01 |

Open selective course for any students enrolled in the College from different disciplines.

**Title of the Course**: Certificate Course in Vermicompost technology

**Theory Course VT -01**

**3 Credits**

**Theory**

| | | |
|---|---|---|
| | **Unit-I General Vermiculture/ Vermicompost** | **12Hrs** |

4

| | | |
|---|---|---|
| 1 | Introduction to vermiculture. definition, meaning, history, economic important, their value in maintenance of soil structure, role as four r's of recycling reduce, reuse, recycle, restore. | |
| 2 | His role in bio transformation of the residues generated by human activity and production of organic fertilizers. How does nature works. | |
| 3 | The matter and humus cycle (product, qualities). Ground population, transformation process in organic matter. | |
| 4 | Choosing the right worm. Useful species of earthworms. Local species of earthworms. Exotic species of earthworms. Complementary activities of autoevaluation. | |
| | **Unit-II**<br>**Earthworm Biology and Rearing** | **12Hrs** |
| 5 | Key to identify the species of earthworms. | |
| 6 | Biology of Eisenia fetida.<br>a) Taxonomy Anatomy, physiology and reproduction of Lumbricidae.<br>b) Vital cycle of Eisenia fetida: alimentation, fecundity, annual reproducer potential and limit factors (gases, diet, humidity, temperature, PH, light, and climatic factors).<br>Complementary activities of auto evaluation. | |
| 7 | Biology of Eudrilus eugeniae.<br>c) Taxonomy Anatomy, physiology and reproduction of Eudrilidae.<br>d) Vital cycle of Eudrilus eugeniae: alimentation, fecundity, annual reproducer potential and limit factors (gases, diet, humidity, temperature, PH, light, and climatic factors).<br>Complementary activities of auto evaluation. | |
| | **Unit-III**<br>**Vermicompost Technology (Methods and Products)** | **12Hrs** |
| 7 | Small Scale Earthworm farming for home gardens<br>- Earthworm compost for home gardens | |
| 8 | Conventional commercial composting<br>- Earthworm Composting larger scale | |
| 9 | - Earthworm Farming (Vermiculture), Extraction (harvest), vermicomposting harvest and processing. | |

5

| | | |
|---|---|---|
| 10 | Nutritional Composition of Vermicompost for plants, comparison with other fertilizers | |
| 11 | Vermiwash collection, composition &use | |
| 12 | Enemies of Earthworms, Sickness and worm's enemies.<br>Frequent problems. How to prevent and fix them.<br>Complementary activities of auto evaluation. | |
| | **Unit-IV**<br>**Applied vermiculture.** | **12Hrs** |
| 13 | a) The working group experience with E. fetida populations comportment with farm industrial residues (frigorific, cow places, feed-lot, aviaries exploitations, and solid urban residues). b) Lineaments to vermicomposting elaboration projects. | |
| 14 | c) Considerations about economical aspects of this activity.<br>Research and ratability according to different exploitation orientations (worm's meat production, worm's humus production, or integrated projects).<br>Toxins released by the worms (harmful effects)<br>Complementary activities of auto evaluation. | |

**Practical Course – VT- 02**

**Practicals** **1 Credit**

| | **Unit-V** | **18Hrs** |
|---|---|---|
| 1 | Key to identify different types of earthworms | |
| 2 | Field trip- Collection of native earthworms & their identification | |
| 3 | Study of Sytematic position, habits, habitat & External characters of Eisenia fetida | |
| 4 | Study of Life stages & development of Eisenia fetida | |
| 5 | Study of Life stages & development of Eudrilus eugeniae | |
| 6 | Comparison of morphology & life stages of Eisenia fetida & Eudrilus eugeniae | |
| 7 | Study of Vermiculture, Vermiwash & Vermicompost equipments, devices | |
| 8 | Preparation vermibeds, maintenance of vermicompost & climatic conditions. | |
| 9 | Harvesting, packaging, transport and storage of Vermicompost and separation | |

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| | | |
|---|---|---|
| | of life stages | |
| 10 | Study of verms diseases & enemies | |
| 11 | Study the effects of vermicompost & vermiwash on any two short duration crop plants | |
| 12 | Study the effects of sewage water on development of worms | |

Total periods in hrs = Theory 12hrs per unit x 4 units = 48hrs x 60 minutes =2880 minutes+18 hrs for practical (i.e. 18x60 minutes =1080 minutes); 2880+1080 =3960 minutes. 66hrs÷5hrs in a week = 13.2 weeks duration i.e. 3.5 months (105 days)

Initially about 60days are required to set the culture or to form the vermicompost, latter on in about 45 days second culture will be formed. Students will observe 2 succeeding beds (rearing).Total days 60+45 = 105 days. ( not recognized by UGC, for UGC 20 credits of which 10 credits for project/ field work/training, it should be of 300 hrs, duration 6 months)

**Advantage of the Course & Future Prospects:**

I. Students can construct their own compost farm & thereby can get monthly income of Rs. 7000-8000.
II. Students/ farmers by using vermicompost in their field can increase the crop yield.
III. Students residing in cities can produce vermicompost in small scale for garden/household plants.
IV. They can get the jobs in educational institutes as vermicompost/vermiculture technician.
V. The candidate can generate income by supplying verms, vermiwash, & vermicompost.
VI. By developing & propagating vermicompost technology he/she will directly or indirectly help to prevent environmental pollution, by using vermicompost in the field & thereby increasing crop yield he will help to solve food problems.
VII. It will lead towards organic farming & healthy food.
VIII. In today's world, recycling of garbage has become necessary in order to sustain our health and environment. So let's join for **Four R's of Recycling** **Reduce, Reuse, Recycle, Restore** i.e. certificate course in vermicompost technology.

7

**Reference books:**


1. Bhatt J.V. & S.R. Khambata (1959) "Role of Earthworms in Agriculture" Indian Council of Agricultural Research, New Delhi
2. Dash, M.C., B.K.Senapati, P.C. Mishra (1980) " Verms and Vermicomposting" Proceedings of the National Seminar on Organic Waste Utilization and Vermicomposting Dec. 5-8, 1984, (Part B), School of Life Sciences, Sambalpur University, Jyoti Vihar, Orissa.
3. Edwards, C.A. and J.R. Lofty (1977) "Biology of Earthworms" Chapman and Hall Ltd., London.
4. Lee, K.E. (1985) "Earthworms: Their ecology and Relationship with Soils and Land Use" Academic Press, Sydney.
5. Kevin, A and K.E.Lee (1989) " Earthworm for Gardeners and Fisherman" (CSIRO, Australia, Division of Soils)
6. Rahudakar V.B. (2004). Gandul khatashivay Naisargeek Paryay, Atul Book Agency, Pune.
7. Satchel, J.E. (1983) "Earthworm Ecology" Chapman Hall, London.
8. Wallwork, J.A. (1983) "Earthworm Biology" Edward Arnold (Publishers) Ltd. London.


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8

## 20. Professional Ethics (Philosophy)

Akole Taluka Education Society's

**Agasti Arts, Commerce & Dadasaheb Rupwate Science College Akole**

Tal- Akole, Dist- Ahmednagar 422601

**Department of : Philosophy & Logic**

**Activity Report :- 2020-21**

| | |
|---|---|
| **Activity Name** | **Value Added Course : Professional Ethics** (Credit -2) |
| **Date** | 03/05/2021 to 30/06/2021 |
| **Organized by** | Dept of Philosophy & Logic |
| **Activity for** | FY/SY/TYBA Students |
| **Type of Activity** | Co-curricular |
| **Objectives** | 1. To introduce Professional ethics to students.<br>2. To acquaint students with the major issues and perspective concerning Medical, Educational and Law profession.<br>3. To understand the difference between business and profession.<br>4. To knowing the importance of morality in being in professional.<br>5. To creating awareness of professional ethics to students. |
| **Brief information about activity** | This course is conducted for FY/SY/TYBA philosophy & Logic students to get the information about professional ethics. This activity is conducted by prof. Dr. Shedage V. S. and Prof. Dr. Hadule D. S. very effectively. Dr. Shedage V. S. is coordinator of this course. 44 students participated in value added course. Students understand the importance of ethics in any business and profession. |
| **Outcomes** | 1. The students will be introduced to professional ethics.<br>2. The students become aware of the ethics in the medical, educational and law profession.<br>3. Understand the importance of ethics in any business and profession.<br>4. Students will adopt ethics while doing any profession. |
| **No. of Students** | 44 |
| **Report** | Attached with this summary |
| **Attachments** | Report of activity, Attendance of students |

Vshedge

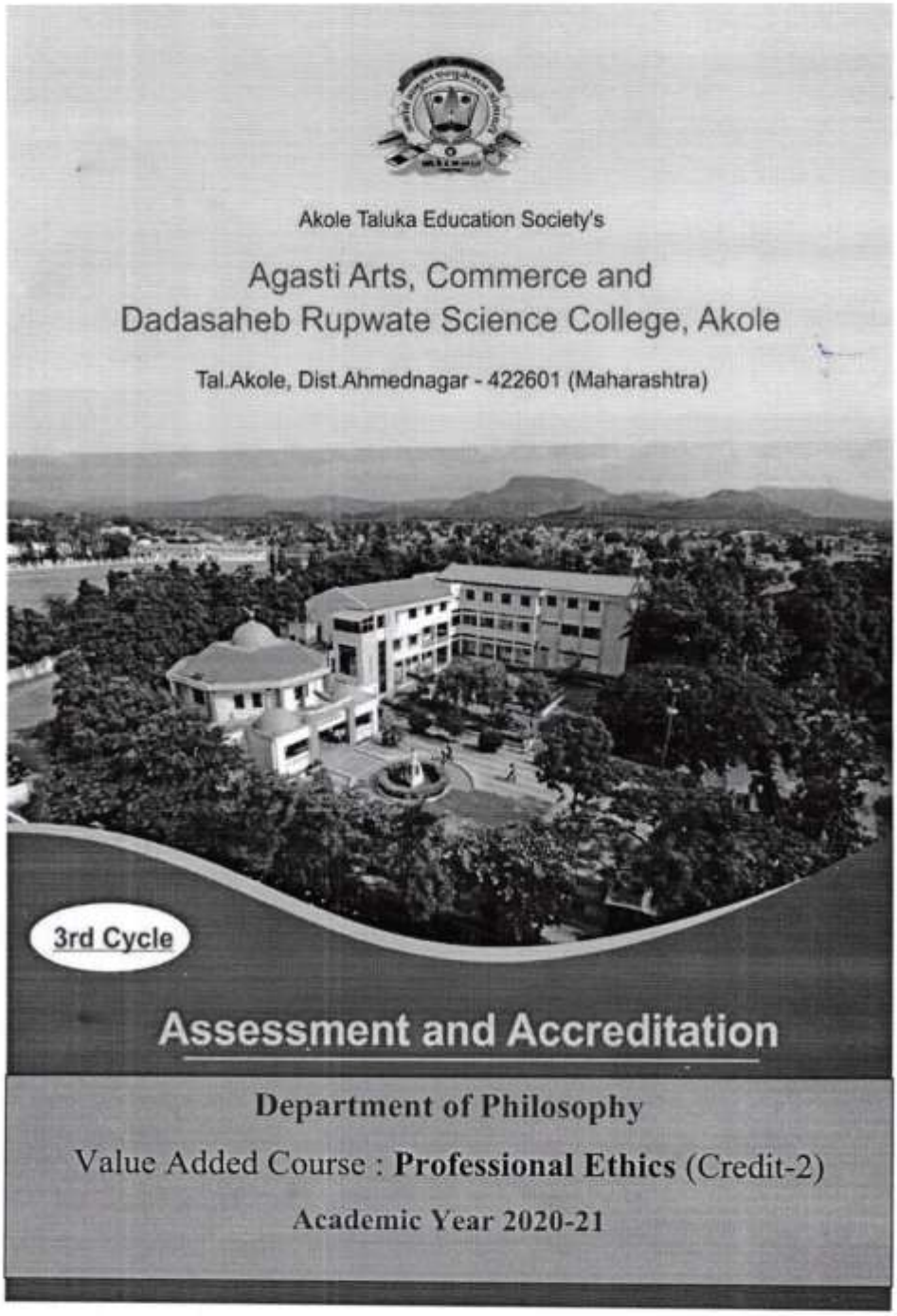
**Head of Department/Activity,**

HEAD
Department Of Philosophy
Agasti Arts,Comm.& D.R.Sci.
College,Akole,Dist.A.Nagar

AGASTI ARTS, COMM. & D.R.SCIENCE COLLEGE • EST. 1974 TAL. AKOLE DISTRICT AHEDNAGAR 422601

**Principal**

PRINCIPAL
AGASTI ARTS, COMM. & DADASAHEB
RUPWATE SCIENCE COLLEGE, AKOLE
TAL. AKOLE. DIST. A.NAGAR - 422 601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Agasti Arts, Commerce and
Dadasaheb Rupwate Science College, Akole
Tal.Akole, Dist.Ahmednagar - 422601 (Maharashtra)
3rd Cycle
Assessment and Accreditation
Department of Philosophy
Value Added Course : Professional Ethics (Credit-2)
Academic Year 2020-21

SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE
Akole Taluka Education Society
**Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole**
Tal- Akole Dist- Ahmednagar Pin-422601

## Department of Philosophy

Value Added Course : **Professional Ethics** (Credit-2)

Academic Year 2020-21

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**Objectives of the course :**

i) To introduce Professional Ethics to students.
ii) To acquaint students with the major issues and perspective concerning Medical, Educational and Law profession.
iii) Understand the difference between business and profession.
iv) Knowing the importance of morality in being professional.
v) Creating awareness of professional ethics in students.

**Course Outcomes :**

1) The student will be introduced to professional ethics.
2) The student will become aware of the ethics in the medical, educational and law professions.
3) Understand the importance of ethics in any business and profession.
4) Students will adopt ethics while doing any profession.

### Course Contents :

**1 : Introduction to professional ethics**

1. Nature and definition of applied ethics, Branches of applied ethics.
2. Nature of professional ethics. Difference between profession and business.
3. Profession and morality (Professional Ethics), Business and Morality (Business Ethics)
4. Importance of professional code of conduct

**2 : Education And Morality**

1. Nature of educational profession
2. Moral problems in educational profession
3. Nature of moral code
   i. Teachers code of conduct
   ii. Students code of conduct

**3 : Ethics of Medical and Law Profession**

1. Nature of medical profession
2. Abuses in Medical Profession
3. Medical Code of conduct
4. Legal Profession and morality

2

## 21. Training on processing of Wild Forest Plants

Akole Taluka Education Society's

**Agasti Arts Commerce & Dadasaheb Rupwate**

**Science College Akole**

**Tal- Akole, District Ahmednagar 422 601**

**Department of Botany**

**Activity Report:-** Value Added Certificate Course : 2020-2021

| | |
|---|---|
| **Activity Name** | Certificate course in Training on processing of Wild Forest Plants" |
| **Date** | 04/01/2021 – 25/01/2021 |
| **Organized by** | Department of Botany |
| **Activity for** | T.Y.B.Sc. Students of Botany |
| **Type of Activity** | Certificate course regarding preparation of processing of Wild Forest Plants. |
| **Objectives** | Expertise the students in preparation of Amla candy, Amla squash,Triphala Churn, *Tinospora* kadha, Enhancement of experimental skills, Hands-on Training. |
| **Brief Information about activity** | Students of Botany should be able to prepare wild fruits products on his own. Preparation of product like Amla candy, Amla squash and *Tinospora* kadha is the key for entrepreneurship and bright career in the field of fruit processing unit. Keeping these things in mind the certificate course regarding preparation of processing of wild forest plants was constructed |
| **Outcomes** | They develop interest in the course, by getting technical skills students will able to manage processing and preservation of fruits. |
| **Number of Students** | 12 |
| **Report** | Successfully completed Certificate course in Training on processing of wild forest plants. |
| **Attachment** | Photo, Attendance Students |

Head of Department / Activity

HEAD
DEPARTMENT OF BOTANY
Agasti Arts,Comm.& Dadasaheb Rupwate Sci.College, Akole,Dist.Ahmednagar

Principal,

Principal
Agasti Arts, Comm., & Dadasaheb Rupwate Science College, Akole Tal.Akole, Dist.Ahmednagar

Akole Taluka Education Society's

**Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole**

Tal- Akole, Dist. - Ahmednagar 422601

**Department of Botany**

**Time Table for Online Certificate Course of 2020-21**

| Sr. No | Duration | No. of Students |
|---|---|---|
| 1 | 4 Weeks | 6 |

Teachers Name-

1) Course Co-coordinator – Prof. B.K.Bhangare
2) Prof. S. P. Godage

Head of Department

(Botany)

DEPARTMENT OF BOTANY
Agasti Arts,Comm.& Dadasaheb
Rupwate Sci.College,AkoleDist.A.Nagar

Principal

Principal
Agasti Art's, Comm., & Dadasaheb
Rupwate Science College, Akole
Tal.Akole, Dist.Ahmednagar

## Syllabus

| Sr. No. | Topic | Lectures |
|---|---|---|
| 1 | Introduction to Forest Management. | 6L |
| 2 | Ethno-Botany. | 8L |
| 3 | Cultivation & Harvesting of economically Medicinal Plants. | 10L |
| 4 | Economic Botany. | 8L |
| 5 | Social Forestry Concept. | 8L |
| 6 | Post Harvesting & Marketing | 8L |
| 7 | Practical's based on syllabus | 48L |
| 8 | Lists of some Medicinal Plants | - |

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DEPARTMENT OF BOTANY
Agasti Arts,Comm.& Dadasaheb
Rupwate Sci.College,Akole,Dist.A.Nagar

(30)

1. INTRODUCTON TO FOREST MANAGEMENT — 6 Lectures

1.1 Forest and its ecosystem.

1.2 Deforestation and its causes

1.3 Concept of social forestry & Agro forestry.

**2. ETHNNO-BOTANY** — **8 Lectures**

2.1 Introduction, Definition & scope

2.2 Conservation of Natural Resources- Traditional and Modern methods.

2.3 Economically Important Plants and its ethno botanically Importance.

2.4 Plants Resources utilized for Tribal food.

2.5 Ethno Medicinal Plant Resources.

**3. CULTIVATION AND HARVESTING OF ECONOMICALLY IMP. PLANTS** — **10 Lectures**

3.1 Amla.

3.2 Mango

3.3 Carrisa

3.4 Tamarind

3.5 Bel

3.6 Hirda

3.7 Behada

3.8 Jambhul

3.9 Aloe

3.10 Adulsa

3.11 Tinospora

4. ECONOMIC BOTANY — 8 Lectures

4.1 Introduction, Definition and scope of Economic Botany.

4.2 Important Medicinal Plants and Products

4.3 Amla Pulp & Amla candy

4.4 Mango pulp and juice

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Rupwate Sci.College,Akole,Dist.A.Nagar

Practical's based on syllabus

1. Harvesting of **Medic**inal plant –a) Adulasa b) Amla

2. Propagation **Techniq**ues Patch budding of Amla.

3. Grafting of **Mango (**Stone grafting).

4. Stem cutting of **a)** Adulasa plant b) Amla plant

5. Propagation of **a) Tamarind** b) Amla c) Behada d) Jambhul with seed (Nursery Tech. Application)

6. Preparation of **Triph**ala Churna.

7. Preparation of **khada** (Tinospora cordifolia).

8. Preparation of **cough** syrup Adulasa cough syrup.

9. Preparation of **Aloe** Gel.

10. Preparation of **Aml**a candy, Amla syrup, & Amla pickle.

11. Preparation of **Medi**cated oil (Tulsi, Sabja, and Nilgiri).

12. Post harvesting **of** Mango, Karavand, and Chinch.

13. Drying Tech**niques** for preservation of Medicinal plant parts (Amla, Behada, and Hirda fruit).

14. Field visit and **Fore**st survey (Industrial & Biodiversity rich area visit)

**********

HEAD
DEPARTMENT OF BOTANY
Agasti Arts,Comm.& Dadasaheb
Rupwate Sci.College,Akole,Dist.A.Nagar

## 22. Marathi Grammar (Marathi)

**Tal- Akole, Dist- Ahmednagar 422601**
**Department - Marathi**
**Activity Report :- २०२२०-२१**

| | |
|---|---|
| Activity Name | मराठी प्रमाणपत्र कार्यशाळा |
| Date | १ फेब्रुवारी ते 9० मार्च २०२१ |
| Organized by | मराठी विभाग |
| Activity for | विद्यार्थी |
| Type of Activity | मराठी प्रमाणपत्र कार्यशाळा |
| Objectives | १.मराठी व्याकरणविषयी आवड निर्माण करणे.<br>२. विद्यार्थ्यांना नवनवीन साहित्यिकांची ओळख करणे.<br>३. व्याकरणाचे नियम शिकविणे. |
| Brief information about activity | अगस्ती कला, वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालयातील मराठी विभागाच्या वतीने ०१/०२/२०२१ ते १०/०३/२०२१ या काळात मराठी प्रमाणपत्र कार्यशाळा घेण्यात आली . |
| Outcomes | १.मराठी व्याकरणविषयी आवड निर्माण झाली .<br>२. विद्यार्थ्यांना नवनवीन साहित्यिकांची ओळख झाली.<br>३. व्याकरणाचे नियम माहित झाले . |
| No. of Students | ५४ |
| Analysis of Feedback | उत्तम प्रतिसाद |
| Report | अहवाल प्रत |
| Attachments | Photo, Attendance of Student & Teachers, News/ News Cutting, Feedback Form. |
| Other Information | नाही |

Head of Department/Activity
डॉ.सौ.रंजना म.कदम
(मराठी विभाग प्रमुख)
अगस्ति कला,वाणिज्य व दादासाहेब रुपवते
विज्ञान महाविद्यालय,अकोले,जि.अ.नगर

COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE • AGASTI ARTS • EST. 1974 TAL AKOLE DISTRICT AHEDNAGAR 422601

Principal
प्राचार्य
अगस्ति कला, वाणिज्य व दादासाहेब रुपवते
विज्ञान महाविद्यालय, अकोले, जि.अहमदनगर - ४२२ ६०१

सावित्रीबाई फुले पुणे विद्यापीठ
अकोले तालुका एज्युकेशन सोसायटीचे
**अगस्ति कला, वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालय, अकोले,**
**मराठी विभाग**
**विषय : मराठी व्याकरण अभ्यासक्रम (प्रमाणपत्र कोर्स )**
**(२०२० -२१)**

(तासिका - ४०)

**उद्दिष्टये :** -

१) मराठी भाषेवर प्रभुत्व प्राप्त करण्यासाठी विद्यार्थ्यांना व्याकरणाचे मुद्दे समजून देणे.
२) मराठी व्याकरणाच्या अधारे या भाषेचे वेगळेपण, वैशिष्टये स्वभाव, उच्चारण इ. अनेक घटकांची माहिती करुन देणे.
३) विद्यार्थ्यांमधील व्याकरणाविषयीची मनातील भिती व शंका दूर करणे.

**१) वर्णविचार :** (तासिका - ४)

१)वर्णमाला २)वर्णांचे प्रकार ३)स्वरांचे प्रकार ४)व्यंजनांचे प्रकार ५) वर्णांची उच्चारस्थाने.

**२)संधी :** (तासिका - ४)

१) स्वरसंधी २) व्यंजनसंधी ३)विसर्गसंधी ४)मराठीचे विशेष संधी

**३)शब्दविचार :** (तासिका - १०)

१) शब्दविचार २)शब्द आणि पद३) नामे) ४सामान्यनाम ५)विशेषण, ६)क्रियापद ७)क्रियाविशेषण ८)शब्दयोगी ९)उभयान्वयी १०)केवलप्रयोगी.

**४) समास :** (तासिका - ४)

समासाचे प्रकार : १)अव्ययीभाव २) तत्पुरुष समास ३) व्दंद समास ४) बहुव्रीही समास

**५) वृत्ते :** (तासिका - ८)

१) गद्य व पद्य यातील फरक २) गणलेखनाची पध्दत ३) मात्रावृत्ते उदाहरणे व लक्षणे ४) पद्यावर्तनी अर्ध समजाती ५) पद्यावर्तनी विषमजाती ६) भृंगावर्तनी समजाती ७)छंद ८) मुक्तछंद

**६) अलंकार :** (तासिका - १०)

१.शब्दालंकार : अनुप्रास,यमक, श्लेष
२.अर्थालंकार : उपमा
३.उत्प्रेक्षा : अपन्हुती,रुपक,व्यतिरेक,अनन्वय,भ्रांतिमान,ससंदेह,अतिशयोक्ती, दृष्टांत,अर्थान्तरन्यास,स्वभावोक्ती,अन्योक्ती,पर्यायोक्ती,विरोधाभास, असंगती,सार,व्याजस्तुती,व्याजोक्ती,चेतनगुणोक्ती

प्राचार्य,
अगस्ति कला,वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालय अकोले, जि.अहमदनगर

## 23. Dairy & Agriculture Chemistry (Chemistry)

Department of Chemistry

Akole Taluka Education Society's,
Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole
Tal- Akole, Dist- Ahmednagar 422601

Department of Chemistry

**Activity Report (2020-21)**

| | |
|---|---|
| **Activity Name** | Certificate Course in Dairy & Agriculture Chemistry (CCDAC:2020-21) |
| **Date** | 03/05/2021 to 01/06/2021 |
| **Organized by** | Department of Chemistry, Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole.422601 |
| **Activity for** | T. Y. B. Sc. (Chemistry) Students |
| **Type of Activity** | Certificate Course (Online) |
| **Objectives** | 1. Knowing importance of the subject from the point of rural economy.<br>2. Understanding the Microbiology of the milk, various preservation and adulterants, various milk proteins and their role for the human body.<br>3. Understand basic concept of soil, properties of soil. |
| **Outcomes** | 1. Students will be able to describe the scope of agriculture, soil components.<br>2. Students will also able to describe the composition of milk, identify the approximate content of individual types present and describe physicochemical characteristics of the main components.<br>3. Students will be able to use their knowledge of the chemistry of dairy components. |
| **No. of Students** | 108 |
| **Analysis of Feedback** | In feedback, students have mentioned the importance of the course in knowing the basics of Dairy & Agriculture Chemistry. The course found useful to inculcate new knowledge & properties among the students. |
| **Attachments** | Syllabus, Student list, Attendance of Student & Teachers, Question paper, Mark list, Certificate. |

Head of Department/Activity,
Head
Department of Chemistry
Agasti Arts,Comm. & Dadasaheb Rupwate
Science College,Akole,Dist.A'Nagar

Principal
PRINCIPAL
AGASTI ARTS, COMM. & DADASAHEB
RUPWATE SCIENCE COLLEGE, AKOLE
TAL AKOLE. DIST. A.NAGAR - 422 601

**SAVITRIBAI PHULE PUNE UNIVERSITY**

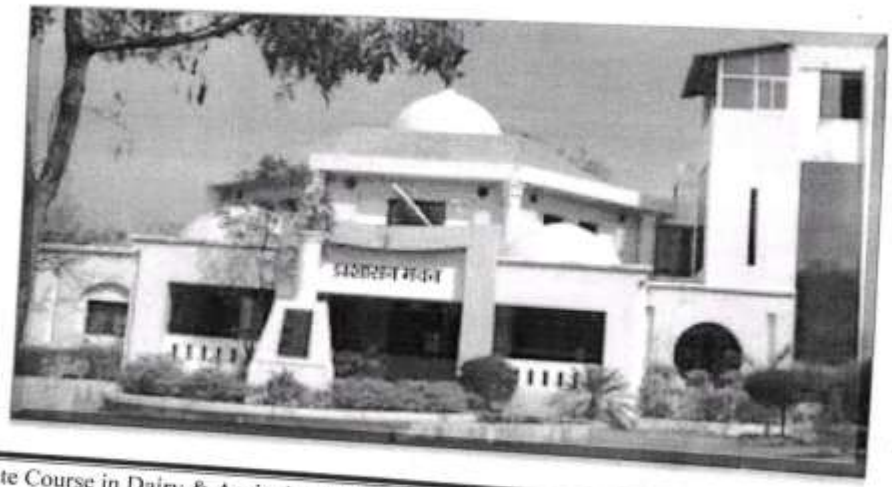
# CERTIFICATE COURSE IN DAIRY & AGRICULTURAL CHEMISTRY

**Organized by**

## Department of Chemistry

**Agasti Arts, Commerce &DadasahebRupwate Science College, Akole**
**Tal.-Akole, Dist.- Ahmednagar 422601**

**2020-2021**




साहसे श्री: प्रतिवसति।

Akole Taluka Education Society's

Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole. Tal: Akole, Dist: Ahmednagar (422 601)

DEPARTMENT OF CHEMISTRY

**Certificate Course in Dairy & Agricultural Chemistry (2020-21)**

## Dairy Chemistry

### Learning Objectives of Dairy Chemistry

The students are expected to study "Dairy Chemistry" in view of-

1. Knowing importance of the subject from the point of rural economy.
2. Knowing the composition of milk, its food & nutritive value.
3. Understanding the Microbiology of the milk.
4. Understanding various preservation and adulterants, various milk proteins and their role for the human body.
5. Knowing various milk products, their composition, manufacture and uses.

## Agriculture Chemistry

### Learning Objectives of Agriculture Chemistry

The students are expected to study "Agricultural Chemistry" in view of-

1. Know the role of agriculture chemistry and its potential.
2. Understand basic concept of soil, properties of soil & its classification on the basis of pH.
3. Know the different plant nutrients, their functions and deficiency symptoms.
4. Understand importance of manures as compared to chemical fertilizers'.
5. Understand the importance of green manuring.
6. Have the knowledge of the use of proper the plants.
7. Know various techniques to protect the plants.
8. Have the knowledge of various pesticides, insecticides, fungicides and herbicides.
9. Identify the problematic soil and recommend method for their reclamation.
10. Have the knowledge of quality irrigation water, water quality standard and analysis of irrigation water.


साहसे श्री: प्रतिवसति।

AkoleTaluka Education Society's

Agasti Arts, Commerce &DadasahebRupwate Science College, Akole.

Tal: Akole, Dist: Ahmednagar (422 601)

**DEPARTMENT OF CHEMISTRY**

## Certificate Course in Dairy &Agricultural Chemistry (2020-21)

**Objectives:**

**A) Learning Objectives of Dairy Chemistry**

The students are expected to study "Dairy Chemistry" in view of-

1. Knowing importance of the subject from the point of rural economy.
2. Knowing the composition of milk, its food & nutritive value.
3. Understanding the Microbiology of the milk.
4. Understanding various preservation and adulterants, various milk proteins and theirrole for the human body.
5. Knowing various milk products, their composition, manufacture and uses.

**B) Learning Objectives of Agriculture Chemistry**

The students are expected to study "Agricultural Chemistry" in view of-

1. Know the role of agriculture chemistry and its potential.
2. Understand basic concept of soil, properties of soil & its classification on the basis of pH.
3. Know the different plant nutrients, their functions and deficiency symptoms.
4. Understand importance of manures as compared to chemical fertilizers'.
5. Understand the importance of green manuring.
6. Have the knowledge of the use of proper the plants.
7. Know various techniques to protect the plants.
8. Have the knowledge of various pesticides, insecticides, fungicides and herbicides.
9. Identify the problematic soil and recommend method for their reclamation.
10. Have the knowledge of quality irrigation water, water quality standard and analysis of irrigation water.


**Prior Knowledge:**

Students should be familiar with the Milk components, their properties as well as basic milk processing operations.Students should also be familiar with the Agricultural terminologies, Soil components & their properties.

A brief review of some of these concepts will be done, especially in the context of Dairy & Agricultural Chemistry.

**Learning Outcomes:**

Students will be able to describe the scope of agriculture, soil components ( mineral matter, organic matter, soil air), functions of soil- Physical (colour, texture, structure, density, porosity etc.), chemical properties of soil, soil reaction (pH of soil- Acidic, Alkaline, Normal), Nutrition value of soil in terms of fertilizer & manures etc.

Students will also able to describe the composition of milk, identify the approximate content ofindividual types present and describe physicochemical characteristics of the main components. Student will be able to explain how dairy products (such as fluid milk, butter, cheese, ice-cream) are made and the key functions of the processing steps involved.

Students will be able to use their knowledge of the chemistry of dairy components (proteins, fats, lactose, salts) to evaluate the impact of processing conditions (e.g. heat, pH) on milk and dairy products.

**Recommended References:**

**A) Dairy Chemistry:**

1. Outline of Dairy Technology- Oxford University press By- Sukumar De. (Edition-1983)
2. Dairy Chemistry and Animal Nutrition- M.M. Rai, Kalyani, Publishers, New Delhi 3rd Edition, 1980
3. Fundamentals of Dairy Chemistry- B.H. Webb, A.H. Hohsson, J.A. Alford, CBB Publishers and Distributors.
4. Milk and Milk Products- C.H. Eckles, H. Macy, Tata McGraw Hikk Publishing Company Ltd.
5. Chemistry and Testing of Dairy Products- H.V. Athertion, J.A. New Lander, CBS, Publishers and Distributors.

**B) Agricultural Chemistry:**

1. Text book of soil science, T.D. Biswas, S.K. Mukharjee, Tata McGraw Hill Publishing company, New Delhi
2. Introduction to Agronomy and soil, water management, V.G. Vaidya, K.R. Sahashtra Buddhe (Continental Prakashan)
3. Principals of soil science, M.M. Rai, Millian complex of India, Bombay, 1977
4. Manures and fertilizers (sixth ed), K.S. Yawalkar, J.P. Agarwal and Bokde, Agrihorticulturepublishing house, Nagpur, India

5. Chemistry of insecticides and fungicides, U.S. Sreeramula (2nd Ed), oxford and IBH Publishing company, New Delhi
6.Fundamentals of soil sciences, C.E. Millar and L.M. Turk, Bio-Tech- New Delhi (1st Ed 2001)
7. Soil, Plant, Water and fertilizer analysis, P.K. Gupta, Published by Agro Botanica
8. A text book of soil science (Revise Ed) J.A. Daji, Revised by J.R. Adam, N.D. Patil, Media promoters and publishers, Mumbai, 1996

**Course Coordinator:**

1) Prof. MahendraDattatrayaBanait, contact: +919423164551
e-mail: mahendrabanait@gmail.com

**Instructors:**

2) Prof. SandeshDasharathKasar, contact: +91 9404696296
e-mail: sandeshkasar2012@gmail.com
3) Prof. SadhanaMadhavBangal, contact: +91 9404696295
e-mail: sandeshkasar2012@gmail.com
4) Prof. PankajHaribhauNaikwadi, contact: +91 9403598115
e-mail: pankajnaikwadi2016@gmail.com
5) Prof. ArunLahanuWakchaure, contact: +91 7798095087
e-mail: arunam23.19@gmail.com
5) Prof. PremkumarRamchandra Mali, contact: +91 8308990954
e-mail:premkumarmali@gmail.com
6) Prof. Suresh GanpatMuthe, contact: +91 9921431384
e-mail: sureshmuthe1521@gmail.com

**Course format and requirements:**

Apart from regular lectures we will conduct 48 theory lectures for dairy & agricultural chemistry (08 topics) & 10 practicals, which are correlated with theory knowledge.

**The marks will be distributed as follows:**

Theory Exam: 50 Marks

Practical Exam: 50 Marks

Total:100 Marks

**Grading system:**

O: 90-100%
A: 80-89%
B: 70-79%
C: 60-69%
D: 50-59%
E: 40-49%
F: < 39%


## Syllabus of Certificate Course in Dairy & Agricultural Chemistry (48 Lectures)

### A) Dairy Chemistry

**Chapter 1) Market Milk** **(06 L)**

Introduction, Definition, constituents of milk of different species such as cow, buffalo, goat, etc., Chemical composition of milk of Indian breed and foreign breeds of cow, factor affecting composition of milk, characteristics of milk of different mammals, physicochemical properties of milk, acidity, pH, density, specific gravity, color and flavor of milk, food and nutritive value of milk. Microbiology of milk, growth of microorganism, stages of growth, product of microbial growth, destruction of microorganisms growth.

**Chapter 2) Milk Adulteration & Preservatives** **(06 L)**

1. Detection of Adulterants- Introduction, Modes of Adulteration and their detection such as skimming, addition of separated milk, skim milk, Water, Starch and cane sugar.
2. Common Preservative- Introduction, Common preservatives are used.

**Chapter 3) Milk Products (Cream, Butter, Cheese and Ice-Cream)** **(08 L)**

**A. Cream-** Definition, Classification, Composition, Food & Nutritive value, Physicochemical properties, Manufacture and uses of Cream.

**B. Butter-** Definition, Classification, Composition, Food & Nutritive value, Physicochemical properties, Manufacture and uses of Butter selection of milk/cream. Preheating of milk, Separating of milk, Neutralization of cream, Pasteurization of cream, Cooking & ageing, repending of cream, salting of butter, washing of butter, packaging & Storage, use of butter.

**C. Cheese-** Definition, Classification, Food & nutritive value, properties, Manufacture and uses of cheese.

**D. Ice-cream-** Definition, Classification, Composition, Food & Nutritive value, Manufacture, packing, hardening & Storage, uses of Ice-cream.

*** Reference Books:**

1) A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan
2) Outline of Dairy Technology- Oxfored University press By- Sukumar De. (Edition-1983)
3) Dairy Chemistry and Animal Nutrition- M.M. Rai, Kalyani, Publishers, New Delhi 3rd Edition, 1980
4) Fundamentals of Dairy Chemistry- B.H. Webb, A.H. Hohsson, J.A. Alford, CBB Publishers and Distributors.


5) Milk and Milk Products- C.H. Eckles, H. Macy, Tata McGraw Hikk Publishing Company Ltd.

6) Chemistry and Testing of Dairy Products- H.V. Athertion, J.A. New Lander, CBS, Publishers and Distributors.

7) Dairy Microbiology, Dr. K.C. MahantaOmsons Publication New Delhi.

## B) Agricultural Chemistry

**Chapter 1) Role & Scope of Agricultural Chemistry** **(01 L)**

**Chapter 2) Soil Chemistry** **(08 L)**

A) Definition of soil
B) Soil components-mineral component, organic matter or humus, soil atmosphere, soil water, soil microorganism
C) Functions of Soil- Physical, Chemical, Biological
D) Physical properties of soil- soil texture, soil structure, soil color, soil temp, soil density, porosity of soil.
E) Soil Solution- Definition, Composition & Soil Productivity
F) Soil reactions and its important
G) Factor controlling soil reaction, buffering capacity, importance of buffer action in agriculture, ion exchange

**Chapter 3) Manures and Fertilizers** **(07 L)**

**A) Manures**

1. Introduction, Definition and classification of manures
2. Effect of bulky organic manures on soil, farm yard manures (FYM), Factors affecting on FYM, method of preparation, losses during handling and storage
3. Biogas plant. Human waste, sewage and sludge, types of sludge, carbon nitrogen ratio, sewage irrigation and uses
4. Green manuring, types of green manuring, characteristics, advantages and disadvantages of green manuring
5. Biofertlizers: definition, classification, role & advantages


**B) Fertilizers**

1. Introduction, Definition, Classification of Fertilizers
2. Time and methods of fertilizers
3. Factors affecting efficiency of fertilizers
4. Nitrogenous Fertilizers, Phosphatic Fertilizers, Potasic Fertilizres, Complex Fertilizers
5. Synthetic fertilizers definition, comparison of synthetic fertilizers with organic fertilizers, environmental effect of synthetic fertilizers
6. Application of fertilizers

**Chapter 4) Problematic Soil and Soil testing** **(06 L)**

1. Different types of problematic soil & their improvement
2. Acid soil- formation of acid soil, effect of soil acidity of soil, reclamation of acidic soil
3. Alkali Soil- formation of alkali soil, reclamation of alkali soil
4. Classification of alkali soil- saline soil, saline alkali soil, non-saline alkali soil
5. Calcareous soils
6. Introduction to soil testing
7. Objectives of soil testing
8. Phases of soil testing- collection of soil sample, analysis in the laboratory and fertilizer applications

**Chapter 5) Protection of Plants** **(06 L)**

1. Insecticide- Definition, Classification, chemical properties, elemental composition, mode of action of synthetic and plant originated compounds organophosphates, malathion, parathion, carbamates, stomach poison, contact poison, systematic poison, fumigants,
2. Fungicides- Definition, Classification, Chemical properties, mode of action of fungicides
3. Herbicides- Definition, Classification, composition, mode of action of Selective and non-selective herbicides.


**Reference Books:**

1. A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan
2. Text book of soil science, T.D. Biswas, S.K. Mukharjee, Tata McGraw Hill Publishing company, New Delhi
3. Introduction to Agronomy and soil, water management, V.G. Vaidya, K.R. Sahashtra Buddhe (Continental Prakashan)
4. Principals of soil science, M.M. Rai, Millian complex of India, Bombay, 1977
5. Manures and fertilizers (sixth ed), K.S. Yawalkar, J.P. Agarwal and Bokde, Agrihorticulture publishing house, Nagpur, India
6. Chemistry of insecticides and fungicides, U.S. Sreeramula (2nd Ed), oxford and IBH Publishing company, New Delhi
7. Fundamentals of soil sciences, C.E. Millar and L.M. Turk, Bio-Tech- New Delhi (1st Ed 2001)
8. Soil, Plant, Water and fertilizer analysis, P.K. Gupta, Published by Agro Botanica
9. A text book of soil science (Revise Ed) J.A. Daji, Revised by J.R. Adam, N. D. Patil, Media promoters and publishers, Mumbai, 1996
10. Biofertilizers and Biopesticides, Author: Deshmukh, A. M. (Arvind Madhavrao)


**Dairy & Agricultural Chemistry (Practicals)**

1) Determination of pH & electrical conductivity of soil & total soluble salts.
2) Determination of calcium carbonate in soil by rapid titration method.
3) Determination of gypsum requirement of alkaline soil.
4) Determination of pH & electrical conductivity of irrigation water samples.
5) Determination of total hardness of water.
6) Determination of copper from copper fungicide.
7) Determination of specific gravity of milk by using specific gravity bottle.
8) Determination of casein in milk by Pynes formal titration method & calculation of the percentage of protein in milk.
9) Determination of saponification value of ghee.
10) Determination of preservatives in milk a) boric acid b) formaldehyde

***Reference Book:**

**1)** A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan.

## 24. Basics of Remote Sensing Geographical Information System and Global Navigation Satellite System (IIRS)

**Module/Course Name**- RS & GIS Applications
**Module/ Course Coordinator:** Shri C.M. Bhatt

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 02/11/2020 | Monday | 1600-1730 hrs | Applications of Remote Sensing & other Geospatial Technologies in Natural Resources Management, Development & Governance | Dr. S. K Srivastav |
| 03/11/2020 | Tuesday | 1600-1730 hrs | Remote Sensing Applications in Agriculture-Crop Inventory & Yield Forecasting | Dr. N.R. Patel |
| 05/11/2020 | Wednesday | 1600-1730 hrs | RS & GIS for Coastal Zone Management | Dr. D. Mitra |
| 06/11/2020 | Thursdays | 1600-1730 hrs | Remote Sensing Applications for Geological studies | Dr. R.S. Chatterjee |
| 09/11/2020 | Monday | 1600-1730 hrs | Space-enabled Products & Services for Disaster Management :Indian Initiatives | Dr. P.K.C.Ray |
| 10/11/2020 | Tuesday | 1600-1730 hrs | RS & GIS Application in Urban & Regional Planning | Shri. Pramod Kumar |
| 11/11/2020 | Wednesday | 1600-1730 hrs | Remote Sensing Application to Atmospheric & Marine Environment | Dr. A.K Mishra |
| 12/11/2020 | Thursdays | 1600-1730 hrs | RS & GIS Applications in Forestry and Ecology | Dr. Hitendra Padalia |
| 16/11/2020 | Monday | 1600 – 1730 hrs | RS applications for Planetary Studies | Dr. Prakash Chauhan |
| 17/11/2020 | Tuesday | 1600-1730 hrs | RS & GIS Applications to Water Resources Management | Dr. S.P Aggarwal |
| 18/11/2020 | Wednesday | 1600-1730 hrs | Geospatial Technology for climate change studies | Dr. Arijit Roy |
| 19/11/2020 | Thursdays | 1600-1730 hrs | Remote Sensing and GIS Applications in Soil Resource Assessment | Dr. Suresh Kumar |
| 20/11/2020 | Friday | 1600-1730 hrs | Panel Discussion Module-3 | All speakers |

Note: Details about the course, examination and latest schedule will be updated on below link;
https://www.iirs.gov.in/EDUSAT-News

**Module Name**- Basics of Geocomputation and Geoweb Services
**Module/ Course Module/Course Coordinator:** Shri. Kamal Pandey

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 19/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Introduction to Geocomputation- Technology and applications<br>Interactive Session | Dr. Harish C. Karnatak |
| 20/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Introduction to online GIS and Geo-web services<br>Interactive Session | Dr. Harish C. Karnatak |
| 21/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Open Geodata Repositories & ISRO Geoweb Services for thematic applications<br>Interactive Session | Shri Kamal Pandey |
| 22/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | Programming concepts for Geo-computation- Introduction to Python and R<br>Interactive Session | Shri Ravi Bhandari |
| 23/10/2020 | Friday | 1600-1700hrs<br>1700-1730 hrs | Overview on concept of DBMS, RDBMS and SDBMS for geo-data handling<br>Interactive Session | Shri Dharmendra Kumar |
| 26/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Basics of cyber infrastructure requirement for GIS, computing, storage, archive, network and firewall infrastructure in GIS lab<br>Interactive Session | Shri Kamal Pandey |
| 27/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Crowdsourcing and participatory GIS using online tools & technologies<br>Interactive Session | Shri Kamal Pandey |
| 28/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Practical Demonstration on: Virtual reality, 2D and 3D geo-visualizations in web platforms<br>Interactive Session | Dr. Harish C Karnatak |
| 29/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | Practical Demonstration on Introduction to Cloud GIS<br>Interactive Session | Shri Ravi Bhandari |

**Module 1:** Remote Sensing & Digital Image Analysis
**Module/ Course Coordinator:** Mrs. Minakshi Kumar

**Duration of the Course: 17 August-11 September 2020**

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 17/08/2020 | Monday | 1600-1730 hrs | Course Inauguration and Introductory Lecture , Indian Space Programme | Dr. Prakash Chauhan |
| 18/08/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Basic Principles of Remote Sensing<br>Interactive Session | Ms. Manu Mehta |
| 19/08/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Earth Observation Sensors and Platforms<br>Interactive Session | Mr. Vinay Kumar |
| 20/08/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Spectral Signatures of Different Land cover Features and Visual Image interpretation<br>Interactive Session | Dr. Hina Pande |
| 21/08/2020 | Friday | Offline Session | RS data products | Self-Practice by participants / Assignment |
| 21/08/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | Digital Image Processing: Basic Concepts Rectification and Registration<br>Interactive Session | Ms. Minakshi Kumar |
| 24/08/2020 | Monday | Offline Session | RS and Image Interpretation Practical | Self-Practice by participants / Assignment |
| 24/08/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Thermal Remote Sensing<br>Interactive Session | Dr. Yogesh Kant |
| 25/08/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Image Enhancement techniques<br>Interactive Session | Dr. Poonam S. Tiwari |
| 26/08/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Image Classification Techniques and Accuracy Assessment Part 1<br>Interactive Session | Dr. Poonam S. Tiwari |
| 27/08/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Image Classification Techniques and Accuracy Assessment Part 2<br>Interactive Session | Dr. Poonam S. Tiwari |
| 28/08/2020 | Friday | 1600-1700 hrs | Digital Change Detection | Ms. Minakshi Kumar |

**Module- 3: Geographical Information System**
**Module/ Course Module/Course Coordinator: Shri. Prabakar Alok Verma**

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 28/09/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Introduction to GIS<br>Interactive Session | Dr. Sameer Saran |
| 29/09/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Geographic Phenomena, Concepts and examples<br>Interactive Session | Shri Prasun Kumar Gupta |
| 30/09/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Data Inputting and Editing in GIS<br>Interactive Session | Shri K. Shiva Reddy |
| 01/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | GIS Data Models (Spatial and Non spatial)<br>Interactive Session | Shri Ashutosh Kumar Jha |
| 05/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Map Projection Concepts & Use in RS & GIS<br>Interactive Session | Dr. Ashutosh Srivastav |
| 06/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Spatial Analysis - Introductory Concepts and Overview<br>Interactive Session | Shri Prabhakar Alok Verma |
| 07/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Spatial Analysis - Functionality and Tools<br>Interactive Session | Shri Kapil Oberai |
| 08/10/2020 | Thursday | 1600-1700hrs<br>1700-1730 hrs | Open Source Software Technology & Tools | Shri Prasun Kumar Gupta |
| 09/10/2020 | Friday | 1600-1700hrs<br>1700-1730 hrs | Data Quality &Policies OGC, NSDI & GSDI initiatives. Discussion on Internet resources | Dr. Harish Karnatak |
| 12/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Advanced Geospatial Modeling<br>Interactive Session | Shri Ashutosh Kumar Jha |
| 13/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Uncertainty in GIS and Error Propagation<br>Interactive Session | Shri Prabhakar Alok Verma |
| 14/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Recent Trends in Geoinformatics & 3D GIS, City Models and Applications | Dr. Sameer Saran |
| 15/10/2020 | Thursdays | 1600-1730 hrs | Panel Discussion of Module 3 | All Module -3 Faculty |

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| | | 1700-1730 hrs | Interactive Session | |
| 31/08/2020 | Monday | | Onam Festival | |
| 01/09/2020 | Tuesday | 1600-1730 Hrs | Digital Data Browsing | Dr. Poonam S . Tiwari |
| 02/09/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Hyperspectral Remote Sensing<br>Interactive Session | Mr. Vinay Kumar |
| 03/09/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Demonstration: Image Processing Software<br>Interactive Session | Ms. Minakshi Kumar |
| 04/09/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | Basics of SAR Remote Sensing<br>Interactive Session | Mr. Shashi Kumar |
| 07/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Basics of SAR Data Processing<br>Interactive Session | Ashish Joshi |
| 08/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Basics of UAV Remote Sensing<br>Interactive Session | Mrs. Shefali Agrawal |
| 04/09/2020<br>07/09/2020<br>08/09/2020 | Wednesday to Friday | Offline Session | Image Processing Hands-on practice | Self-Practice by participants / Assignment |
| 10/09/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Basics of LIDAR Remote Sensing<br>Interactive Session | Dr. Hina Pande |
| 11/09/2020 | Friday | 1600-1730 hrs | Panel Discussion/Query Session | All the faculty |

**Module- 2:** Global Navigation Satellite System
**Module/ Course Coordinator:** Dr. Ashutosh Bhardwaj

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 14/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Introduction to GPS and GNSS<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 15/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | GPS receivers, processing methods, errors and accuracy<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 17/09/2020 | Thursdays | 1600-1700 hrs<br>1700-1730 hrs | Satellites based Augmentation systems & GPS Aided and GEO Augmented Navigation (GAGAN)<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 18/09/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | GPS signal characteristics, Data formats (broadcast, precise ephemeris)<br>Interactive Session | Dr. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 21/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Indian Regional Navigation Satellite System (IRNSS)<br>Interactive Session | Dr. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 22/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | DGPS demonstration (Pre-recorded followed by live query session)<br>Interactive Session | Offline<br>Dr. Ashutosh Bhardwaj |
| 24/09/2020 | Thursdays | 1600-1700 hrs<br>1700-1730 hrs | Advance GNSS processing<br>Interactive Session | Shri Suresh Kannaujiya |
| 25/09/2020 | Friday | **Paned Discussion** | | |

## 25.Training on processing of Wild Forest Plants (Botany)

**Akole Taluka Education Society's**

**Agasti Arts Commerce & Dadasaheb Rupwate**

**Science College Akole**

**Tal- Akole, District Ahmednagar 422 601**

**Department of Botany**

**Activity Report:-**

| | |
|---|---|
| **Activity Name** | Certificate course in "Microscopic Techniques and preparation of Solutions For Experiments in Botany" |
| **Date** | 05/12/2019 –31/03/2020 |
| **Organized by** | Department of Botany |
| **Activity for** | S.Y.B.Sc. Students of Botany |
| **Type of Activity** | Certificate course regarding "Microscopic Techniques and preparation of Solutions For Experiments in Botany". |
| **Objectives** | Expertise the students in Types of Microscopes, Working of Microscopic, Slide Preparations, Types of Sections. |
| **Brief Information about activity** | Students of Botany should be able for Microscopic Techniques, Slide preparations, Preparation of Fixative, Preparation of Chemical Reagents. All of these methods are the key for entrepreneurship and bright career in the field of Laboratory and Scientific Outlook. Keeping these things in mind the certificate course regarding Microscopic Techniques and preparation of Solutions For Experiments in Botany was constructed |
| **Outcomes** | They develop interest in the course, by getting technical skills students will able to handling of chemical reagents, focus applications of technique in Research. |
| **Number of Students** | 18 |
| **Report** | Successfully completed Certificate course in Microscopic Techniques and preparation of Solutions For Experiments in Botany. |
| **Attachment** | Photo, Attendance Students |

Head of Department / Activity

HEAD
DEPARTMENT OF BOTANY
Agasti Arts, Comm.& Dadasaheb
Rupwate Science College
Akole,Dist.A.Nagar

AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE EST. 1974 TAL. AKOLE DISTRICT AHEDNAGAR 422609

Principal,
Agasti Art's, Comm.,& Dadasaheb
Rupwate Science College, Akole
Tal.Akole, Dist.Ahmednagar

AKOLE TALUKA EDUCATION SOCIETYS

AGASTI ARTS COMMERCE AND DADASAHEB RUPWATE SCIENCE COLLEGE AKOLE, TALUKA AKOLE DIST. AHMEDNAGAR

**AFFILIATED TO SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE**

# CERTIFICATE COURSE IN MICROSCOPIC TECHNIQUES AND PREPARATION OF SOLUTIONS FOR EXPERIMENTS IN BOTANY

2019-2020

CONDUCTED BY

DEPARTMENT OF BOTANY

Waghmare R.K.

Dr. R.K. Waghmare
Course Co-ordinator

Prof. B.K. Bhangare
Head Department of Botany

HEAD
DEPARTMENT OF BOTANY
Agasti Arts,Comm.& Dadasaheb Rupwate Sci.College,Akole,Dist.A.Nagar

Dr. Bhaskar Shelke
Principal

Principal
Agasti Art's, Comm., & Dadasaheb Rupwate Science College, Akole Tal.Akole, Dist.Ahmednagar

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## PREFACE

Microscope is one of the most important instruments for the students of Botany. It is mandatory for the students of Botany to know the basics and applications of microscopic techniques. Secondly the students should know the methods of preparation solutions and reagents used for various experiments in Botany. Taking this into consideration we had conducted certificate course in '**Microscopic Techniques and Preparation of Solutions for Experiments in Botany**' during the academic year 2019-2020.

The purpose of this course was to build up the entrepreneurship for students and to create scientific outlook.

Waghmare R.K.

Dr. R.K. Waghmare
Course Co-ordinator

Prof. B.K. Bhangare
Head Dept. of Botany

Agasti Arts,Comm.& Dadasaheb Rupwate Sci.College,Akole,Dist.A.Nagar

Dr. Bhaskar Shelke
Principal

Principal
Agasti Art's, Comm., & Dadasaheb
Rupwate Science College, Akole
Tal.Akole, Dist.Ahmednagar

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**Course Objectives:**

1. Develop interest in the subject Botany.
2. To know the Fundamentals of Microscope
3. To be familiar with principle and working of Microscope
4. Understanding the need of Microscopy
5. To focus applications of technique in Research
6. Handling of chemical reagents

**Learning outcomes:**

1) Increase capacity of the students to think critically
2) To enhance the ability of the students to design and execute an experiment.
3) To boost self-assurance and ability in communicating ideas.
4) To sustain students in research- whether industry or academia as well as teaching.
5) To equip Entrepreneurship for self employment enabling students to confidently face the job market.

Course coordinator: Dr. Rahul Kisan Waghmare

Under the Leadership of Prof. Bhausaheb Kisan Bhangare, Head, Department of Botany.

Instructors:

1) Prof. Shital Pandurang Godage
2) Prof. Kalyani Chandrabhan Arote
3) Prof. Yogita Tukaram Bule

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**Syllabus of certificate course in 'Microscopic Techniques and Preparation of Solutions for Experiments in Botany' (32Lectures)**

**A) Theory: 14( Lectures)**

| Sr.No | Name of the Chapter | Contents | Lectures |
|---|---|---|---|
| 1 | Principle of Microscopy | Types of Microscopes, Working of Microscopes | **2L** |
| 2 | Anatomy | Types of Sections: T.S., L.S., R.L.S. T.L.S, Maceration of plant tissues | **2L** |
| 3 | Staining and Fixatives | Principle of Staining, Types of Stains, Types of fixatives | **2L** |
| 4 | Slide Preparations | Temporary, Semi permanent, Permanent Slide Preparations. | **2L** |
| 5 | Micrometry | Principle and Applications | **2L** |
| 6 | Preparation Of Stains and Reagents | Safranin, Lightgreen, Acetocarmine, Cotton Blue, Benedicts Reagent | **2L** |
| 7 | Preparation of Standard Solution | Buffers, Normal Solutions, Molar Solutions, % Solutions, P.P.M. Solutions | **2L** |

**B) Practical's: (18 Lectures)**

1. Study of Principle, Working and Applications of Compound Microscope and Light Microscope **(3L)**
2. Calibration of Compound Microscope using Micrometer **(3L)**
3. Anatomy of Stem: Transverse Section, Longitudinal Section, Radial Longitudinal Section, Transverse Longitudinal Section. **(3L)**
4. Preparation of Permanent Slides with the help of Double staining method **(3L)**
5. Preparation of Fixatives, Standard Solutions and Stains used for Anatomical Study of Plants **(3L)**
6. Preparation of Chemical Reagents used in various experiments of Botany **(3L)**

**Theory: 14 ( Lectures) + PRACTICALS (18 Lectures) = 32 Lectures**

**REFERENCES BOOKS:**


1. S.C. Santra, T.P. Chatterjee and A.P. Das, College Botany Practical, New Central Book Agency (P) Ltd. Kolkatta 700 009, (Volume –I) Second Revised Edition-1999
2. B.P. Panday, Modern Practical Botany, S. Chand and Company Ltd, New Delhi- 110002, (Volume I) 1985
3. Bendre A.M. Practical Botany B.Sc. I Year, Rastogi Publications Meerut – 250 002 First Edition 2010
4. Bendre A.M., Practical Botany B.Sc. II Year, Rastogi Publications Meerut – 250 002 First Edition 2006
5. Bendre A.M., Practical Botany B.Sc. III Year, Rastogi Publications Meerut – 250 002 First Edition 2010
6. Metcalfe C.R. and Chalk L. Anatomy of Dicotyledons Vol: I and II. Claredon Press, Oxford, 1950
7. Esau, K. Plant Anatomy 2nd Edition Wiley, New York, 1965
8. B.P. Pandey Plant Anatomy, S. Chand and Company Ltd, New Delhi- 110002, 2013
9. Pandey S.N. and Chadha A. Plant Anatomy and Embryology, Vikas Publishing House Pvt Ltd., Noida, India1996.
10. Fahn. A. Plant Anatomy, Pergamon Press London 1989

## 26. Red Wine Making Process (Wine Tech)

Akole Taluka Education Society's

**Agasti Arts Commerce &Dadasaheb Rupwate Science College Akole**

Tal- Akole, District Ahmednagar - 422 601

### Department of Wine, Brewing & Alcohol Technology

### Activity Report:- Year (2019-20)

| | |
|---|---|
| **Activity Name** | Certificate Course in Red Wine Making |
| **Date** | 04/11/2019 to 28/12/2019 |
| **Organized by** | Department of Wine, Brewing & Alcohol Technology |
| **Activity for** | T.Y.B.Sc. Wine, Brewing & Alcohol Technology Students. |
| **Type of Activity** | Certificate Course regarding preparation of Red Wine |
| **Objectives** | Enhancement of practical skill during Red wine making process |
| **Brief Information about activity** | 1. Students of wine technology should able to prepare wine.<br>2. This activity is important for giving shape to the student for future career.<br>3. Hands on training for students in industry to improving skills of students to make them future oriented reference for job or business. |
| **Outcomes** | 1) Development of Self Confidence<br>2) Enhancement of subject knowledge among the student.<br>3) Practical Expert. |
| **Number of Students** | 27 |
| **Report** | Successfully completed Certificate course in Red Wine Making. |
| **Attachment** | Photo, Students Attendance |

HEAD
DEPARTMENT OF WINE TECHNOLOGY
Agasti Arts,Comm.& Dadasaheb
Rupwate Sci.College,Akole,Dist.A.Nagar

AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE
EST. 1974
TAL. AKOLE
DISTRICT
AHEDNAGAR
422601

Principal
Agasti Art's, Comm., & Dadasaheb
Rupwate Science College, Akole
Tal.Akole, Dist.Ahmednagar

INDEX

| SR.NO | TOPIC NAME | Lecture |
|---|---|---|
| 1. | Introduction of Wine | 2L |
| 2. | Objectives of Wine making | 1L |
| 3. | Flow chart of Red Wine making process | 3L |
| 4. | Harvesting of Grapes | 1L |
| 5. | Destemming & Crushing | 2L |
| 6. | Must | 4L |
| 7. | Primary Fermentation & Maceration | 3L |
| 8. | Racking of Wine | 2L |
| 9. | Pressing | 3L |
| 10. | Secondary Fermentation | 6L |
| 11. | Wine Maturation | 3L |
| 12. | Clarification & Stabilization | 2L |
| 13. | Bottling | 2L |
| 14. | Health Benefits of Red Wine | 2L |

**1. Introduction of Wine** — **2 Lectures**

1.1 Defination & Concept of Wine.

1.2 Types of wine

1.3 Objectives of Red wine making process

**2. Flow Chart of Red wine making process.** — **1 Lecture**

**3. Harvesting of Grapes** — **3 Lectures**

3.1 Introduction, definition & concept of Harvesting.

3.2 Types of Harvesting

3.3 Hand Harvesting

3.4 Mechanical Harvesting & its advantages over Hand Harvesting

**4. Destemming & Crushing** — **1 Lecture**

4.1 Concept & Defination of Destemming & Crushing process

4.2 Advantages of Crushing process

**5. Must (Skin + Juice + Seed)** — **2 Lectures**

5.1 Defination & Composition of Must

5.2 Adjustment of Sugar, Acid & pH & Nutrients while preparing Must

**6. Primary fermentation** — **4 Lectures**

6.1 Concept, Defination & Chemical reaction of primary fermentation

6. 2 Temperature control during primary fermentation 63 Process of extraction & its uses during primary fermentation

**7. Maceration (Skin Contact)** — **3 Lectures**

7.1 Defination & uses of Maceration during Primary fermentation

| | |
|---|---|
| **8. Racking** | **2 Lectures** |
| 81 Defination & Concept of Racking | |
| **9. Pressing** | **3 Lectures** |
| 9.1 Introduction & concept of Pressing | |
| 9.2 Role of Pressing during wine making process | |
| **10. Malolactic fermentation Secondary Fermentation)** | **6 Lectures** |
| 10.1 Defination & Concept of MLF | |
| 10.2 Conversion of Malic acid to Lactic acid by LAB | |
| 10.3 Various strams of LAB used during MlF | |
| 10.4 Role of MLF during wine making process | |
| **11 Wine Maturation (Aging of Wine)** | **3 Lectures** |
| 11.1 Concept of Wine Maturation | |
| 112 Advantages of Wine maturation in Oak barrel | |
| **12 Clarification & Stabilization of Wine** | **2 Lectures** |
| 12.1 Concept of Clarification & Stabilization | |
| 12.2 Cold Stabilization of Red wine & its advantages | |
| **13. Bottling** | **2 Lectures** |
| 13.1 Defination & concept of Bottling | |
| **14 Health Benefits of Red wine** | **2 Lectures** |
| 14.1 Benefits of Red wine in curing different diseases like excess obesity, Reduces Stress etc. | |

# OBJECTIVES

1) To create confidence in student for making Red wine for Future benefit.

2) To enhance practical skill among the student for future benefit & career.

3) To motivate & encourage the student for making Red wine.

4) To develope the skill of Red wine making according to business orientation.

# OUTCOMES

1) Development of Self confidence among the student regarding Wine Preaparation & Marketing of Wine.

2) Technically perfection development in Student.

3) Update & Enhance subject knowledge to sustain in future.

4) Enhance knowledge about Red wine making.

## INDEX

| SR.NO | TOPIC NAME | Lecture |
|---|---|---|
| 1. | Introduction of Wine | 2L |
| 2. | Objectives of Wine making | 1L |
| 3. | Flow chart of Red Wine making process | 3L |
| 4. | Harvesting of Grapes | 1L |
| 5. | Destemming & Crushing | 2L |
| 6. | Must | 4L |
| 7. | Primary Fermentation & Maceration | 3L |
| 8. | Racking of Wine | 2L |
| 9. | Pressing | 3L |
| 10. | Secondary Fermentation | 6L |
| 11. | Wine Maturation | 3L |
| 12 . | Clarification & Stabilization | 2L |
| 13 . | Bottling | 2L |
| 14. | Health Benefits of Red Wine | 2L |

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## 27. Marathi Grammar (Marathi)

Akole Taluka Education Society's

**Agasti Arts, Commerce & Dadasaheb Rupwate Science College Akole**

Tal- Akole, Dist- Ahmednagar 422601

Department - Marathi

Activity Report :- २०१९-२०

| | |
|---|---|
| Activity Name | मराठी प्रमाणपत्र कार्यशाळा |
| Date | १ फेब्रुवारी २०२० ते ११ मार्च २०२० |
| Organized by | मराठी विभाग |
| Activity for | विद्यार्थी |
| Type of Activity | मराठी व्याकरण |
| Objectives | १. मराठी व्याकरणविषयी आवड निर्माण करणे.<br>२. विद्यार्थ्यांना नवनवीन साहित्यिकांची ओळख करणे.<br>३. व्याकरणाचे नियम शिकविणे. |
| Brief information about activity | अगस्ती कला, वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालयातील मराठी विभागाच्या वतीने १ जानेवारी २०२० ते ११ जानेवारी २०२० या कालावधीमध्ये आपल्या महाविद्यालयात घेण्यात आला.या कोर्स मध्ये एकूण ३९ विद्यार्थ्यांनी सहभग नोंदविला. |
| Outcomes | १.मराठी व्याकरणविषयी आवड निर्माण झाली .<br>२. विद्यार्थ्यांना नवनवीन साहित्यिकांची ओळख झाली.<br>३. व्याकरणाचे नियम माहित झाले . |
| No. of Students | ३९ |
| Analysis of Feedback | उत्तम प्रतिसाद |
| Report | अहवाल प्रत |
| Attachments | Photo, Attendance of Student & Teachers, News/ News Cutting, Feedback Form. |
| Other Information | नाही |

AGASTI ARTS COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE EST. 1974 TAL. AKOLE DISTRICT AHEDNAGAR 422601

डी.सी.रेजमा म.कदम
(मराठी विभाग प्रमुख)
अगस्ति कला,वाणिज्य व दादासाहेब रुपवते
विज्ञान महाविद्यालय,अकोले,जि.अ.नगर

Principal,
प्राचार्य
अगस्ति कला, वाणिज्य व दादासाहेब रुपवते
विज्ञान महाविद्यालय, अकोले, जि.अहमदनगर - ४२२ ६०१

अकोले तालुका एज्युकेशन सोसायटीचे

**अगस्ति कला, वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालय, अकोले,**

**मराठी विभाग**

**विषय : मराठी व्याकरण अभ्यासक्रम (प्रमाणपत्र कोर्स )**

**(२०१९-२०)**

(तासिका ४०)

**उद्दिष्टये :-**

**१) मराठी भाषेवर प्रभुत्व प्राप्त करण्यासाठी विद्यार्थ्यांना व्याकरणाचे मुद्दे समजून देणे.**
**२) मराठी व्याकरणाच्या अधारे या भाषेचे वेगळेपण, वैशिष्टये स्वभाव, उच्चारण इ. अनेक घटकांची माहिती करुन देणे.**
**३) विद्यार्थ्यांमधील व्याकरणाविषयीची मनातील भिती व शंका दूर करणे.**

**१) वर्णविचार:** ( तासिका ४)
१) वर्णमाला २) वर्णाचे प्रकार ३) स्वरांचे प्रकार ४) व्यंजनांचे प्रकार ५) वर्णाची उच्चारस्थाने.

**२) संधी :** ( तासिका ४)
१) स्वरसंधी २) व्यंजनसंधी ३) विसर्गसंधी ४) मराठीचे विशेष संधी

**३) शब्दविचार :** (तासिका १०)
१) शब्दविचार २) शब्द आणि पद ३) नामे ४) सामान्यनाम ५) विशेषण ६) क्रियापद ७) क्रियाविशेषण (८) शब्दयोगी ९) उभयान्वयी १० ) केवलप्रयोगी.

**४) समास:** (तासिका ४)
समासाचे प्रकार : १) अव्ययीभाव २) तत्पुरुष समास ३) व्दंद समास ४) बहुव्रीही समास

**५) वृत्ते :** (तासिका ८)
१) गद्य व पद्य यातील फरक २) गणलेखनाची पध्दत ३) मात्रावृते उदाहरणे व लक्षणे ४) पद्यावर्तनी अर्ध समजाती ५) पद्यावर्तनी विषमजाती ६) भृंगावर्तनी समजाती ७) छंद ८) मुक्तछंद

**६) अलंकार :** (तासिका १०)
१. शब्दालंकार अनुप्रास, यमक, श्लेष
२. अर्थालंकार उपमा
३. उत्प्रेक्षा: अपन्हुती, रूपक, व्यतिरेक, अनन्वय, भ्रांतिमान, ससंदेह, अतिशयोक्ती, दृष्टांत अर्थान्तरन्यास, स्वभावोक्ती, अन्योक्ती, पर्यायोक्ती, विरोधाभास,असंगती, सार, व्याजस्तुती, व्याजोक्ती, चेतनगुणोक्ती

Dr. V.B. Kole

AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE EST. 1974 TAL. AKOLE DIST. AHMEDNAGAR 422601

**डॉ.सौ.रंजना म.कदम**
**(मराठी विभाग प्रमुख)**
अगस्ति कला,वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालय,अकोले,जि.अहमदनगर

## 28. Dairy & Agriculture Chemistry (Chemistry)

Akole Taluka Education Society's,
Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole
Tal- Akole, Dist- Ahmednagar 422601

Department of Chemistry

**Activity Report (2019-20)**

| | |
|---|---|
| **Activity Name** | Certificate Course in Dairy & Agriculture Chemistry (CCDAC:2019-20) |
| **Date** | 15/01/2020 to 15/05/2020 |
| **Organized by** | Department of Chemistry, Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole.422601 |
| **Activity for** | T. Y. B. Sc.(Chemistry) Students |
| **Type of Activity** | Certificate Course (Offline) |
| **Objectives** | 1. Knowing importance of the subject from the point of rural economy.<br>2. Understanding the Microbiology of the milk, various preservation and adulterants, various milk proteins and their role for the human body.<br>3. Understand basic concept of soil, properties of soil. |
| **Outcomes** | 1. Students will be able to describe the scope of agriculture, soil components.<br>2. Students will also able to describe the composition of milk, identify the approximate content of individual types present and describe physicochemical characteristics of the main components.<br>3. Students will be able to use their knowledge of the chemistry of dairy components. |
| **No. of Students** | 70 |
| **Analysis of Feedback** | In feedback, students have underlined the importance of this course in understanding the basic concepts of dairy science and agricultural chemistry. They were satisfied with the course due to the usefulness of the course for job opportunities in dairy science and agricultural chemistry. |
| **Attachments** | Syllabus, Student list, Attendance of Student & Teachers, Question paper, Mark list, Certificate. |

**Head of Department/Activity,**
Head
Department of Chemistry
Agasti Arts,Comm. & Dadasaheb Rupwate
Science College,Akole,Dist.A'Nagar

**Principal**
AGASTI ARTS, COMM. & DADASAHEB
RUPWATE SCIENCE COLLEGE, AKOLE
TAL.AKOLE, DIST. A.NAGAR - 422 601

SAVITRIBAI PHULE PUNE UNIVERSITY

# CERTIFICATE COURSE IN DAIRY CHEMISTRY

Organized by

## Department of Chemistry

Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole
Tal.- Akole, Dist.- Ahmednagar 422601

**2019 – 2020**


साहसे श्रीः प्रतिवसति।

Akole Taluka Education Society's

Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole. Tal: Akole, Dist: Ahmednagar (422 601)

DEPARTMENT OF CHEMISTRY

**Certificate Course in Dairy & Agricultural Chemistry (2019-20)**

## Dairy Chemistry

### Learning Objectives of Dairy Chemistry

The students are expected to study "Dairy Chemistry" in view of-

1. Knowing importance of the subject from the point of rural economy.
2. Knowing the composition of milk, its food & nutritive value.
3. Understanding the Microbiology of the milk.
4. Understanding various preservation and adulterants, various milk proteins and their role for the human body.
5. Knowing various milk products, their composition, manufacture and uses.

## Agriculture Chemistry

### Learning Objectives of Agriculture Chemistry

The students are expected to study "Agricultural Chemistry" in view of-

1. Know the role of agriculture chemistry and its potential.
2. Understand basic concept of soil, properties of soil & its classification on the basis of pH.
3. Know the different plant nutrients, their functions and deficiency symptoms.
4. Understand importance of manures as compared to chemical fertilizers'.
5. Understand the importance of green manuring.
6. Have the knowledge of the use of proper the plants.
7. Know various techniques to protect the plants.
8. Have the knowledge of various pesticides, insecticides, fungicides and herbicides.
9. Identify the problematic soil and recommend method for their reclamation.
10. Have the knowledge of quality irrigation water, water quality standard and analysis of irrigation water.


## Syllabus of Certificate Course in Dairy & Agricultural Chemistry (48 Lectures)

### A) Dairy Chemistry

**Chapter 1) Market Milk** **(06 L)**

Introduction, Definition, constituents of milk of different species such as cow, buffalo, goat, etc., Chemical composition of milk of Indian breed and foreign breeds of cow, factor affecting composition of milk, characteristics of milk of different mammals, physicochemical properties of milk, acidity, pH, density, specific gravity, color and flavor of milk, food and nutritive value of milk. Microbiology of milk, growth of microorganism, stages of growth, product of microbial growth, destruction of microorganisms growth.

**Chapter 2) Milk Adulteration & Preservatives** **(06 L)**

1. Detection of Adulterants- Introduction, Modes of Adulteration and their detection such as skimming, addition of separated milk, skim milk, Water, Starch and cane sugar.
2. Common Preservative- Introduction, Common preservatives are used.

**Chapter 3) Milk Products (Cream, Butter, Cheese and Ice-Cream)** **(08 L)**

**A. Cream-** Definition, Classification, Composition, Food & Nutritive value, Physicochemical properties, Manufacture and uses of Cream.

**B. Butter-** Definition, Classification, Composition, Food & Nutritive value, Physicochemical properties, Manufacture and uses of Butter selection of milk/cream. Preheating of milk, Separating of milk, Neutralization of cream, Pasteurization of cream, Cooking & ageing, repending of cream, salting of butter, washing of butter, packaging & Storage, use of butter.

C. **Cheese-** Definition, Classification, Food & nutritive value, properties, Manufacture and uses of cheese.

**D. Ice-cream-** Definition, Classification, Composition, Food & Nutritive value, Manufacture, packing, hardening & Storage, uses of Ice-cream.

*** Reference Books:**

1) A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan
2) Outline of Dairy Technology- Oxford University press By- Sukumar De. (Edition-1983)
3) Dairy Chemistry and Animal Nutrition- M.M. Rai, Kalyani, Publishers, New Delhi 3rd Edition, 1980
4) Fundamentals of Dairy Chemistry- B.H. Webb, A.H. Hohsson, J.A. Alford, CBB Publishers and Distributors.

5) Milk and Milk Products- C.H. Eckles, H. Macy, Tata McGraw Hikk Publishing Company Ltd.

6) Chemistry and Testing of Dairy Products- H.V. Athertion, J.A. New Lander, CBS, Publishers and Distributors.

7) Dairy Microbiology, Dr. K.C. MahantaOmsons Publication New Delhi.

## B) Agricultural Chemistry

**Chapter 1) Role & Scope of Agricultural Chemistry** **(01 L)**

**Chapter 2) Soil Chemistry** **(08 L)**

A) Definition of soil
B) Soil components-mineral component, organic matter or humus, soil atmosphere, soil water, soil microorganism
C) Functions of Soil- Physical, Chemical, Biological
D) Physical properties of soil- soil texture, soil structure, soil color, soil temp, soil density, porosity of soil.
E) Soil Solution- Definition, Composition & Soil Productivity
F) Soil reactions and its important
G) Factor controlling soil reaction, buffering capacity, importance of buffer action in agriculture, ion exchange

**Chapter 3) Manures and Fertilizers** **(07 L)**

**A) Manures**

1. Introduction, Definition and classification of manures
2. Effect of bulky organic manures on soil, farm yard manures (FYM), Factors affecting on FYM, method of preparation, losses during handling and storage
3. Biogas plant. Human waste, sewage and sludge, types of sludge, carbon nitrogen ratio, sewage irrigation and uses
4. Green manuring, types of green manuring, characteristics, advantages and disadvantages of green manuring
5. Biofertlizers: definition, classification, role & advantages


**B) Fertilizers**

1. Introduction, Definition, Classification of Fertilizers
2. Time and methods of fertilizers
3. Factors affecting efficiency of fertilizers
4. Nitrogenous Fertilizers, Phosphatic Fertilizers, Potasic Fertilizres, Complex Fertilizers
5. Synthetic fertilizers definition, comparison of synthetic fertilizers with organic fertilizers, environmental effect of synthetic fertilizers
6. Application of fertilizers

**Chapter 4) Problematic Soil and Soil testing** **(06 L)**

1. Different types of problematic soil & their improvement
2. Acid soil- formation of acid soil, effect of soil acidity of soil, reclamation of acidic soil
3. Alkali Soil- formation of alkali soil, reclamation of alkali soil
4. Classification of alkali soil- saline soil, saline alkali soil, non-saline alkali soil
5. Calcareous soils
6. Introduction to soil testing
7. Objectives of soil testing
8. Phases of soil testing- collection of soil sample, analysis in the laboratory and fertilizer applications

**Chapter 5) Protection of Plants** **(06 L)**

1. Insecticide- Definition, Classification, chemical properties, elemental composition, mode of action of synthetic and plant originated compounds organophosphates, malathion, parathion, carbamates, stomach poison, contact poison, systematic poison, fumigants,
2. Fungicides- Definition, Classification, Chemical properties, mode of action of fungicides
3. Herbicides- Definition, Classification, composition, mode of action of Selective and non-selective herbicides.


**Reference Books:**

1. A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan
2. Text book of soil science, T.D. Biswas, S.K. Mukharjee, Tata McGraw Hill Publishing company, New Delhi
3. Introduction to Agronomy and soil, water management, V.G. Vaidya, K.R. Sahashtra Buddhe (Continental Prakashan)
4. Principals of soil science, M.M. Rai, Millian complex of India, Bombay, 1977
5. Manures and fertilizers (sixth ed), K.S. Yawalkar, J.P. Agarwal and Bokde, Agrihorticulture publishing house, Nagpur, India
6. Chemistry of insecticides and fungicides, U.S. Sreeramula (2nd Ed), oxford and IBH Publishing company, New Delhi
7. Fundamentals of soil sciences, C.E. Millar and L.M. Turk, Bio-Tech- New Delhi (1st Ed 2001)
8. Soil, Plant, Water and fertilizer analysis, P.K. Gupta, Published by Agro Botanica
9. A text book of soil science (Revise Ed) J.A. Daji, Revised by J.R. Adam, N. D. Patil, Media promoters and publishers, Mumbai, 1996
10. Biofertilizers and Biopesticides, Author: Deshmukh, A. M. (Arvind Madhavrao)


**Dairy & Agricultural Chemistry (Practicals)**

1) Determination of pH & electrical conductivity of soil & total soluble salts.
2) Determination of calcium carbonate in soil by rapid titration method.
3) Determination of gypsum requirement of alkaline soil.
4) Determination of pH & electrical conductivity of irrigation water samples.
5) Determination of total hardness of water.
6) Determination of copper from copper fungicide.
7) Determination of specific gravity of milk by using specific gravity bottle.
8) Determination of casein in milk by Pynes formal titration method & calculation of the percentage of protein in milk.
9) Determination of saponification value of ghee.
10) Determination of preservatives in milk a) boric acid b) formaldehyde

***Reference Book:**

**1)** A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan.

## 29. Basics of Remote Sensing Geographical Information System and Global Navigation Satellite System (IIRS)

Govt. of India
Department Space
Indian Space Research Organization
Indian Institute of Remote Sensing

Sixty Fourth IIRS Outreach Programme
On
Basic of RS, GIS & GNSS

**Tentative Course Schedule**

| S. No. | Course Name | Module Name | From | To |
|---|---|---|---|---|
| 1. | Basic of RS, GIS & GNSS | Complete Basic Course | 17-08-2020 | 20-11-2020 |
| 2. | Remote Sensing & Digital Image Analysis | Module-1 | 17-08-2020 | 11-09-2020 |
| 3. | Global Navigation Satellite System | Module-2 | 14-09-2020 | 25-09-2020 |
| 4. | Geographical Information System Module | Module-3 | 28-09-2020 | 16-10-2020 |
| 5. | Basics of Geocomputation and Geoweb Services | Module- 4 | 19-10-2020 | 29-10-2020 |
| 6. | RS & GIS Applications | Module-5 | 02-11-2020 | 20-11-2020 |

**Module 1:** Remote Sensing & Digital Image Analysis
**Module/ Course Coordinator:** Mrs. Minakshi Kumar

**Duration of the Course: 17 August-11 September 2020**

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 17/08/2020 | Monday | 1600-1730 hrs | Course Inauguration and Introductory Lecture , Indian Space Programme | Dr. Prakash Chauhan |
| 18/08/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Basic Principles of Remote Sensing<br>Interactive Session | Ms. Manu Mehta |
| 19/08/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Earth Observation Sensors and Platforms<br>Interactive Session | Mr. Vinay Kumar |
| 20/08/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Spectral Signatures of Different Land cover Features and Visual Image interpretation<br>Interactive Session | Dr. Hina Pande |
| 21/08/2020 | Friday | Offline Session | RS data products | Self-Practice by participants / Assignment |
| 21/08/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | Digital Image Processing: Basic Concepts Rectification and Registration<br>Interactive Session | Ms. Minakshi Kumar |
| 24/08/2020 | Monday | Offline Session | RS and Image Interpretation Practical | Self-Practice by participants / Assignment |
| 24/08/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Thermal Remote Sensing<br>Interactive Session | Dr. Yogesh Kant |
| 25/08/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Image Enhancement techniques<br>Interactive Session | Dr. Poonam S. Tiwari |
| 26/08/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Image Classification Techniques and Accuracy Assessment Part 1<br>Interactive Session | Dr. Poonam S. Tiwari |
| 27/08/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Image Classification Techniques and Accuracy Assessment Part 2<br>Interactive Session | Dr. Poonam S. Tiwari |
| 28/08/2020 | Friday | 1600-1700 hrs | Digital Change Detection | Ms. Minakshi Kumar |

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| | | 1700-1730 hrs | Interactive Session | |
| 31/08/2020 | Monday | | Onam Festival | |
| 01/09/2020 | Tuesday | 1600-1730 Hrs | Digital Data Browsing | Dr. Poonam S . Tiwari |
| 02/09/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Hyperspectral Remote Sensing<br>Interactive Session | Mr. Vinay Kumar |
| 03/09/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Demonstration: Image Processing Software<br>Interactive Session | Ms. Minakshi Kumar |
| 04/09/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | Basics of SAR Remote Sensing<br>Interactive Session | Mr. Shashi Kumar |
| 07/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Basics of SAR Data Processing<br>Interactive Session | Ashish Joshi |
| 08/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Basics of UAV Remote Sensing<br>Interactive Session | Mrs. Shefali Agrawal |
| 04/09/2020<br>07/09/2020<br>08/09/2020 | Wednesday to Friday | Offline Session | Image Processing Hands-on practice | Self-Practice by participants / Assignment |
| 10/09/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Basics of LIDAR Remote Sensing<br>Interactive Session | Dr. Hina Pande |
| 11/09/2020 | Friday | 1600-1730 hrs | Panel Discussion/Query Session | All the faculty |

**Module- 2:** Global Navigation Satellite System
**Module/ Course Coordinator:** Dr. Ashutosh Bhardwaj

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 14/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Introduction to GPS and GNSS<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 15/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | GPS receivers, processing methods, errors and accuracy<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 17/09/2020 | Thursdays | 1600-1700 hrs<br>1700-1730 hrs | Satellites based Augmentation systems & GPS Aided and GEO Augmented Navigation (GAGAN)<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 18/09/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | GPS signal characteristics, Data formats (broadcast, precise ephemeris)<br>Interactive Session | Dr. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 21/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Indian Regional Navigation Satellite System (IRNSS)<br>Interactive Session | Dr. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 22/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | DGPS demonstration (Pre-recorded followed by live query session)<br>Interactive Session | Offline<br>Dr. Ashutosh Bhardwaj |
| 24/09/2020 | Thursdays | 1600-1700 hrs<br>1700-1730 hrs | Advance GNSS processing<br>Interactive Session | Shri Suresh Kannaujiya |
| 25/09/2020 | Friday | **Paned Discussion** | | |

**Module- 3: Geographical Information System**
**Module/ Course Module/Course Coordinator: Shri. Prabakar Alok Verma**

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 28/09/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Introduction to GIS<br>Interactive Session | Dr. Sameer Saran |
| 29/09/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Geographic Phenomena, Concepts and examples<br>Interactive Session | Shri Prasun Kumar Gupta |
| 30/09/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Data Inputting and Editing in GIS<br>Interactive Session | Shri K. Shiva Reddy |
| 01/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | GIS Data Models (Spatial and Non spatial)<br>Interactive Session | Shri Ashutosh Kumar Jha |
| 05/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Map Projection Concepts & Use in RS & GIS<br>Interactive Session | Dr. Ashutosh Srivastav |
| 06/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Spatial Analysis - Introductory Concepts and Overview<br>Interactive Session | Shri Prabhakar Alok Verma |
| 07/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Spatial Analysis - Functionality and Tools<br>Interactive Session | Shri Kapil Oberai |
| 08/10/2020 | Thursday | 1600-1700hrs<br>1700-1730 hrs | Open Source Software Technology & Tools | Shri Prasun Kumar Gupta |
| 09/10/2020 | Friday | 1600-1700hrs<br>1700-1730 hrs | Data Quality &Policies OGC, NSDI & GSDI initiatives. Discussion on Internet resources | Dr. Harish Karnatak |
| 12/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Advanced Geospatial Modeling<br>Interactive Session | Shri Ashutosh Kumar Jha |
| 13/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Uncertainty in GIS and Error Propagation<br>Interactive Session | Shri Prabhakar Alok Verma |
| 14/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Recent Trends in Geoinformatics & 3D GIS, City Models and Applications | Dr. Sameer Saran |
| 15/10/2020 | Thursdays | 1600-1730 hrs | Panel Discussion of Module 3 | All Module -3 Faculty |

**Module Name**- Basics of Geocomputation and Geoweb Services
**Module/ Course Module/Course Coordinator:** Shri. Kamal Pandey

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 19/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Introduction to Geocomputation- Technology and applications<br>Interactive Session | Dr. Harish C. Karnatak |
| 20/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Introduction to online GIS and Geo-web services<br>Interactive Session | Dr. Harish C. Karnatak |
| 21/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Open Geodata Repositories & ISRO Geoweb Services for thematic applications<br>Interactive Session | Shri Kamal Pandey |
| 22/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | Programming concepts for Geo-computation- Introduction to Python and R<br>Interactive Session | Shri Ravi Bhandari |
| 23/10/2020 | Friday | 1600-1700hrs<br>1700-1730 hrs | Overview on concept of DBMS, RDBMS and SDBMS for geo-data handling<br>Interactive Session | Shri Dharmendra Kumar |
| 26/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Basics of cyber infrastructure requirement for GIS, computing, storage, archive, network and firewall infrastructure in GIS lab<br>Interactive Session | Shri Kamal Pandey |
| 27/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Crowdsourcing and participatory GIS using online tools & technologies<br>Interactive Session | Shri Kamal Pandey |
| 28/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Practical Demonstration on: Virtual reality, 2D and 3D geo-visualizations in web platforms<br>Interactive Session | Dr. Harish C Karnatak |
| 29/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | Practical Demonstration on Introduction to Cloud GIS<br>Interactive Session | Shri Ravi Bhandari |

**Module/Course Name**- RS & GIS Applications
**Module/ Course Coordinator:** Shri C.M. Bhatt

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 02/11/2020 | Monday | 1600-1730 hrs | Applications of Remote Sensing & other Geospatial Technologies in Natural Resources Management, Development & Governance | Dr. S. K Srivastav |
| 03/11/2020 | Tuesday | 1600-1730 hrs | Remote Sensing Applications in Agriculture-Crop Inventory & Yield Forecasting | Dr. N.R. Patel |
| 05/11/2020 | Wednesday | 1600-1730 hrs | RS & GIS for Coastal Zone Management | Dr. D. Mitra |
| 06/11/2020 | Thursdays | 1600-1730 hrs | Remote Sensing Applications for Geological studies | Dr. R.S. Chatterjee |
| 09/11/2020 | Monday | 1600-1730 hrs | Space-enabled Products & Services for Disaster Management :Indian Initiatives | Dr. P.K.C.Ray |
| 10/11/2020 | Tuesday | 1600-1730 hrs | RS & GIS Application in Urban & Regional Planning | Shri. Pramod Kumar |
| 11/11/2020 | Wednesday | 1600-1730 hrs | Remote Sensing Application to Atmospheric & Marine Environment | Dr. A.K Mishra |
| 12/11/2020 | Thursdays | 1600-1730 hrs | RS & GIS Applications in Forestry and Ecology | Dr. Hitendra Padalia |
| 16/11/2020 | Monday | 1600 – 1730 hrs | RS applications for Planetary Studies | Dr. Prakash Chauhan |
| 17/11/2020 | Tuesday | 1600-1730 hrs | RS & GIS Applications to Water Resources Management | Dr. S.P Aggarwal |
| 18/11/2020 | Wednesday | 1600-1730 hrs | Geospatial Technology for climate change studies | Dr. Arijit Roy |
| 19/11/2020 | Thursdays | 1600-1730 hrs | Remote Sensing and GIS Applications in Soil Resource Assessment | Dr. Suresh Kumar |
| 20/11/2020 | Friday | 1600-1730 hrs | Panel Discussion Module-3 | All speakers |

Note: Details about the course, examination and latest schedule will be updated on below link:
https://www.iirs.gov.in/EDUSAT-News

## 30. Remote Sensing and Digital Image Analysis (IIRS)

Govt. of India
Department Space
Indian Space Research Organization
Indian Institute of Remote Sensing

Sixty Fourth IIRS Outreach Programme
On
Basic of RS, GIS & GNSS

**Tentative Course Schedule**

| S. No. | Course Name | Module Name | From | To |
|---|---|---|---|---|
| 1. | Basic of RS, GIS & GNSS | Complete Basic Course | 17-08-2020 | 20-11-2020 |
| 2. | Remote Sensing & Digital Image Analysis | Module-1 | 17-08-2020 | 11-09-2020 |
| 3. | Global Navigation Satellite System | Module-2 | 14-09-2020 | 25-09-2020 |
| 4. | Geographical Information System Module | Module-3 | 28-09-2020 | 16-10-2020 |
| 5. | Basics of Geocomputation and Geoweb Services | Module- 4 | 19-10-2020 | 29-10-2020 |
| 6. | RS & GIS Applications | Module-5 | 02-11-2020 | 20-11-2020 |

**Module 1:** Remote Sensing & Digital Image Analysis
**Module/ Course Coordinator:** Mrs. Minakshi Kumar

**Duration of the Course: 17 August-11 September 2020**

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 17/08/2020 | Monday | 1600-1730 hrs | Course Inauguration and Introductory Lecture , Indian Space Programme | Dr. Prakash Chauhan |
| 18/08/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Basic Principles of Remote Sensing<br>Interactive Session | Ms. Manu Mehta |
| 19/08/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Earth Observation Sensors and Platforms<br>Interactive Session | Mr. Vinay Kumar |
| 20/08/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Spectral Signatures of Different Land cover Features and Visual Image interpretation<br>Interactive Session | Dr. Hina Pande |
| 21/08/2020 | Friday | Offline Session | RS data products | Self-Practice by participants / Assignment |
| 21/08/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | Digital Image Processing: Basic Concepts Rectification and Registration<br>Interactive Session | Ms. Minakshi Kumar |
| 24/08/2020 | Monday | Offline Session | RS and Image Interpretation Practical | Self-Practice by participants / Assignment |
| 24/08/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Thermal Remote Sensing<br>Interactive Session | Dr. Yogesh Kant |
| 25/08/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Image Enhancement techniques<br>Interactive Session | Dr. Poonam S. Tiwari |
| 26/08/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Image Classification Techniques and Accuracy Assessment Part 1<br>Interactive Session | Dr. Poonam S. Tiwari |
| 27/08/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Image Classification Techniques and Accuracy Assessment Part 2<br>Interactive Session | Dr. Poonam S. Tiwari |
| 28/08/2020 | Friday | 1600-1700 hrs | Digital Change Detection | Ms. Minakshi Kumar |

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| | | 1700-1730 hrs | Interactive Session | |
| 31/08/2020 | Monday | | Onam Festival | |
| 01/09/2020 | Tuesday | 1600-1730 Hrs | Digital Data Browsing | Dr. Poonam S . Tiwari |
| 02/09/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Hyperspectral Remote Sensing<br>Interactive Session | Mr. Vinay Kumar |
| 03/09/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Demonstration: Image Processing Software<br>Interactive Session | Ms. Minakshi Kumar |
| 04/09/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | Basics of SAR Remote Sensing<br>Interactive Session | Mr. Shashi Kumar |
| 07/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Basics of SAR Data Processing<br>Interactive Session | Ashish Joshi |
| 08/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Basics of UAV Remote Sensing<br>Interactive Session | Mrs. Shefali Agrawal |
| 04/09/2020<br>07/09/2020<br>08/09/2020 | Wednesday to Friday | Offline Session | Image Processing Hands-on practice | Self-Practice by participants / Assignment |
| 10/09/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Basics of LIDAR Remote Sensing<br>Interactive Session | Dr. Hina Pande |
| 11/09/2020 | Friday | 1600-1730 hrs | Panel Discussion/Query Session | All the faculty |

**Module- 2:** Global Navigation Satellite System
**Module/ Course Coordinator:** Dr. Ashutosh Bhardwaj

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 14/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Introduction to GPS and GNSS<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 15/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | GPS receivers, processing methods, errors and accuracy<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 17/09/2020 | Thursdays | 1600-1700 hrs<br>1700-1730 hrs | Satellites based Augmentation systems & GPS Aided and GEO Augmented Navigation (GAGAN)<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 18/09/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | GPS signal characteristics, Data formats (broadcast, precise ephemeris)<br>Interactive Session | Dr. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 21/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Indian Regional Navigation Satellite System (IRNSS)<br>Interactive Session | Dr. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 22/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | DGPS demonstration (Pre-recorded followed by live query session)<br>Interactive Session | Offline<br>Dr. Ashutosh Bhardwaj |
| 24/09/2020 | Thursdays | 1600-1700 hrs<br>1700-1730 hrs | Advance GNSS processing<br>Interactive Session | Shri Suresh Kannaujiya |
| 25/09/2020 | Friday | **Paned Discussion** | | |

**Module- 3: Geographical Information System**
**Module/ Course Module/Course Coordinator: Shri. Prabakar Alok Verma**

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 28/09/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Introduction to GIS<br>Interactive Session | Dr. Sameer Saran |
| 29/09/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Geographic Phenomena, Concepts and examples<br>Interactive Session | Shri Prasun Kumar Gupta |
| 30/09/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Data Inputting and Editing in GIS<br>Interactive Session | Shri K. Shiva Reddy |
| 01/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | GIS Data Models (Spatial and Non spatial)<br>Interactive Session | Shri Ashutosh Kumar Jha |
| 05/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Map Projection Concepts & Use in RS & GIS<br>Interactive Session | Dr. Ashutosh Srivastav |
| 06/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Spatial Analysis - Introductory Concepts and Overview<br>Interactive Session | Shri Prabhakar Alok Verma |
| 07/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Spatial Analysis - Functionality and Tools<br>Interactive Session | Shri Kapil Oberai |
| 08/10/2020 | Thursday | 1600-1700hrs<br>1700-1730 hrs | Open Source Software Technology & Tools | Shri Prasun Kumar Gupta |
| 09/10/2020 | Friday | 1600-1700hrs<br>1700-1730 hrs | Data Quality &Policies OGC, NSDI & GSDI initiatives. Discussion on Internet resources | Dr. Harish Karnatak |
| 12/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Advanced Geospatial Modeling<br>Interactive Session | Shri Ashutosh Kumar Jha |
| 13/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Uncertainty in GIS and Error Propagation<br>Interactive Session | Shri Prabhakar Alok Verma |
| 14/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Recent Trends in Geoinformatics & 3D GIS, City Models and Applications | Dr. Sameer Saran |
| 15/10/2020 | Thursdays | 1600-1730 hrs | Panel Discussion of Module 3 | All Module -3 Faculty |

**Module Name**- Basics of Geocomputation and Geoweb Services
**Module/ Course Module/Course Coordinator:** Shri. Kamal Pandey

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 19/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Introduction to Geocomputation- Technology and applications<br>Interactive Session | Dr. Harish C. Karnatak |
| 20/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Introduction to online GIS and Geo-web services<br>Interactive Session | Dr. Harish C. Karnatak |
| 21/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Open Geodata Repositories & ISRO Geoweb Services for thematic applications<br>Interactive Session | Shri Kamal Pandey |
| 22/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | Programming concepts for Geo-computation- Introduction to Python and R<br>Interactive Session | Shri Ravi Bhandari |
| 23/10/2020 | Friday | 1600-1700hrs<br>1700-1730 hrs | Overview on concept of DBMS, RDBMS and SDBMS for geo-data handling<br>Interactive Session | Shri Dharmendra Kumar |
| 26/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Basics of cyber infrastructure requirement for GIS, computing, storage, archive, network and firewall infrastructure in GIS lab<br>Interactive Session | Shri Kamal Pandey |
| 27/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Crowdsourcing and participatory GIS using online tools & technologies<br>Interactive Session | Shri Kamal Pandey |
| 28/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Practical Demonstration on: Virtual reality, 2D and 3D geo-visualizations in web platforms<br>Interactive Session | Dr. Harish C Karnatak |
| 29/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | Practical Demonstration on Introduction to Cloud GIS<br>Interactive Session | Shri Ravi Bhandari |

**Module/Course Name**- RS & GIS Applications
**Module/ Course Coordinator:** Shri C.M. Bhatt

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 02/11/2020 | Monday | 1600-1730 hrs | Applications of Remote Sensing & other Geospatial Technologies in Natural Resources Management, Development & Governance | Dr. S. K Srivastav |
| 03/11/2020 | Tuesday | 1600-1730 hrs | Remote Sensing Applications in Agriculture-Crop Inventory & Yield Forecasting | Dr. N.R. Patel |
| 05/11/2020 | Wednesday | 1600-1730 hrs | RS & GIS for Coastal Zone Management | Dr. D. Mitra |
| 06/11/2020 | Thursdays | 1600-1730 hrs | Remote Sensing Applications for Geological studies | Dr. R.S. Chatterjee |
| 09/11/2020 | Monday | 1600-1730 hrs | Space-enabled Products & Services for Disaster Management :Indian Initiatives | Dr. P.K.C.Ray |
| 10/11/2020 | Tuesday | 1600-1730 hrs | RS & GIS Application in Urban & Regional Planning | Shri. Pramod Kumar |
| 11/11/2020 | Wednesday | 1600-1730 hrs | Remote Sensing Application to Atmospheric & Marine Environment | Dr. A.K Mishra |
| 12/11/2020 | Thursdays | 1600-1730 hrs | RS & GIS Applications in Forestry and Ecology | Dr. Hitendra Padalia |
| 16/11/2020 | Monday | 1600 – 1730 hrs | RS applications for Planetary Studies | Dr. Prakash Chauhan |
| 17/11/2020 | Tuesday | 1600-1730 hrs | RS & GIS Applications to Water Resources Management | Dr. S.P Aggarwal |
| 18/11/2020 | Wednesday | 1600-1730 hrs | Geospatial Technology for climate change studies | Dr. Arijit Roy |
| 19/11/2020 | Thursdays | 1600-1730 hrs | Remote Sensing and GIS Applications in Soil Resource Assessment | Dr. Suresh Kumar |
| 20/11/2020 | Friday | 1600-1730 hrs | Panel Discussion Module-3 | All speakers |

Note: Details about the course, examination and latest schedule will be updated on below link:
https://www.iirs.gov.in/EDUSAT-News

## 31. Geographical Information System (IIRS)

Govt. of India
Department Space
Indian Space Research Organization
Indian Institute of Remote Sensing

Sixty Fourth IIRS Outreach Programme
On
Basic of RS, GIS & GNSS

**Tentative Course Schedule**

| S. No. | Course Name | Module Name | From | To |
|---|---|---|---|---|
| 1. | Basic of RS, GIS & GNSS | Complete Basic Course | 17-08-2020 | 20-11-2020 |
| 2. | Remote Sensing & Digital Image Analysis | Module-1 | 17-08-2020 | 11-09-2020 |
| 3. | Global Navigation Satellite System | Module-2 | 14-09-2020 | 25-09-2020 |
| 4. | Geographical Information System Module | Module-3 | 28-09-2020 | 16-10-2020 |
| 5. | Basics of Geocomputation and Geoweb Services | Module- 4 | 19-10-2020 | 29-10-2020 |
| 6. | RS & GIS Applications | Module-5 | 02-11-2020 | 20-11-2020 |

**Module 1:** Remote Sensing & Digital Image Analysis
**Module/ Course Coordinator:** Mrs. Minakshi Kumar

**Duration of the Course: 17 August-11 September 2020**

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 17/08/2020 | Monday | 1600-1730 hrs | Course Inauguration and Introductory Lecture , Indian Space Programme | Dr. Prakash Chauhan |
| 18/08/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Basic Principles of Remote Sensing<br>Interactive Session | Ms. Manu Mehta |
| 19/08/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Earth Observation Sensors and Platforms<br>Interactive Session | Mr. Vinay Kumar |
| 20/08/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Spectral Signatures of Different Land cover Features and Visual Image interpretation<br>Interactive Session | Dr. Hina Pande |
| 21/08/2020 | Friday | Offline Session | RS data products | Self-Practice by participants / Assignment |
| 21/08/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | Digital Image Processing: Basic Concepts Rectification and Registration<br>Interactive Session | Ms. Minakshi Kumar |
| 24/08/2020 | Monday | Offline Session | RS and Image Interpretation Practical | Self-Practice by participants / Assignment |
| 24/08/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Thermal Remote Sensing<br>Interactive Session | Dr. Yogesh Kant |
| 25/08/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Image Enhancement techniques<br>Interactive Session | Dr. Poonam S. Tiwari |
| 26/08/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Image Classification Techniques and Accuracy Assessment Part 1<br>Interactive Session | Dr. Poonam S. Tiwari |
| 27/08/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Image Classification Techniques and Accuracy Assessment Part 2<br>Interactive Session | Dr. Poonam S. Tiwari |
| 28/08/2020 | Friday | 1600-1700 hrs | Digital Change Detection | Ms. Minakshi Kumar |

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| | | 1700-1730 hrs | Interactive Session | |
| 31/08/2020 | Monday | | Onam Festival | |
| 01/09/2020 | Tuesday | 1600-1730 Hrs | Digital Data Browsing | Dr. Poonam S . Tiwari |
| 02/09/2020 | Wednesday | 1600-1700 hrs<br>1700-1730 hrs | Hyperspectral Remote Sensing<br>Interactive Session | Mr. Vinay Kumar |
| 03/09/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Demonstration: Image Processing Software<br>Interactive Session | Ms. Minakshi Kumar |
| 04/09/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | Basics of SAR Remote Sensing<br>Interactive Session | Mr. Shashi Kumar |
| 07/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Basics of SAR Data Processing<br>Interactive Session | Ashish Joshi |
| 08/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | Basics of UAV Remote Sensing<br>Interactive Session | Mrs. Shefali Agrawal |
| 04/09/2020<br>07/09/2020<br>08/09/2020 | Wednesday to Friday | Offline Session | Image Processing Hands-on practice | Self-Practice by participants / Assignment |
| 10/09/2020 | Thursday | 1600-1700 hrs<br>1700-1730 hrs | Basics of LIDAR Remote Sensing<br>Interactive Session | Dr. Hina Pande |
| 11/09/2020 | Friday | 1600-1730 hrs | Panel Discussion/Query Session | All the faculty |

**Module- 2:** Global Navigation Satellite System
**Module/ Course Coordinator:** Dr. Ashutosh Bhardwaj

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 14/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Introduction to GPS and GNSS<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 15/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | GPS receivers, processing methods, errors and accuracy<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 17/09/2020 | Thursdays | 1600-1700 hrs<br>1700-1730 hrs | Satellites based Augmentation systems & GPS Aided and GEO Augmented Navigation (GAGAN)<br>Interactive Session | Dr. Ashutosh Bhardwaj |
| 18/09/2020 | Friday | 1600-1700 hrs<br>1700-1730 hrs | GPS signal characteristics, Data formats (broadcast, precise ephemeris)<br>Interactive Session | Dr. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 21/09/2020 | Monday | 1600-1700 hrs<br>1700-1730 hrs | Indian Regional Navigation Satellite System (IRNSS)<br>Interactive Session | Dr. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 22/09/2020 | Tuesday | 1600-1700 hrs<br>1700-1730 hrs | DGPS demonstration (Pre-recorded followed by live query session)<br>Interactive Session | Offline<br>Dr. Ashutosh Bhardwaj |
| 24/09/2020 | Thursdays | 1600-1700 hrs<br>1700-1730 hrs | Advance GNSS processing<br>Interactive Session | Shri Suresh Kannaujiya |
| 25/09/2020 | Friday | **Paned Discussion** | | |

**Module- 3: Geographical Information System**
**Module/ Course Module/Course Coordinator: Shri. Prabakar Alok Verma**

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 28/09/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Introduction to GIS<br>Interactive Session | Dr. Sameer Saran |
| 29/09/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Geographic Phenomena, Concepts and examples<br>Interactive Session | Shri Prasun Kumar Gupta |
| 30/09/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Data Inputting and Editing in GIS<br>Interactive Session | Shri K. Shiva Reddy |
| 01/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | GIS Data Models (Spatial and Non spatial)<br>Interactive Session | Shri Ashutosh Kumar Jha |
| 05/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Map Projection Concepts & Use in RS & GIS<br>Interactive Session | Dr. Ashutosh Srivastav |
| 06/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Spatial Analysis - Introductory Concepts and Overview<br>Interactive Session | Shri Prabhakar Alok Verma |
| 07/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Spatial Analysis - Functionality and Tools<br>Interactive Session | Shri Kapil Oberai |
| 08/10/2020 | Thursday | 1600-1700hrs<br>1700-1730 hrs | Open Source Software Technology & Tools | Shri Prasun Kumar Gupta |
| 09/10/2020 | Friday | 1600-1700hrs<br>1700-1730 hrs | Data Quality &Policies OGC, NSDI & GSDI initiatives. Discussion on Internet resources | Dr. Harish Karnatak |
| 12/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Advanced Geospatial Modeling<br>Interactive Session | Shri Ashutosh Kumar Jha |
| 13/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Uncertainty in GIS and Error Propagation<br>Interactive Session | Shri Prabhakar Alok Verma |
| 14/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Recent Trends in Geoinformatics & 3D GIS, City Models and Applications | Dr. Sameer Saran |
| 15/10/2020 | Thursdays | 1600-1730 hrs | Panel Discussion of Module 3 | All Module -3 Faculty |

**Module Name**- Basics of Geocomputation and Geoweb Services
**Module/ Course Module/Course Coordinator:** Shri. Kamal Pandey

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 19/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Introduction to Geocomputation- Technology and applications<br>Interactive Session | Dr. Harish C. Karnatak |
| 20/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Introduction to online GIS and Geo-web services<br>Interactive Session | Dr. Harish C. Karnatak |
| 21/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Open Geodata Repositories & ISRO Geoweb Services for thematic applications<br>Interactive Session | Shri Kamal Pandey |
| 22/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | Programming concepts for Geo-computation- Introduction to Python and R<br>Interactive Session | Shri Ravi Bhandari |
| 23/10/2020 | Friday | 1600-1700hrs<br>1700-1730 hrs | Overview on concept of DBMS, RDBMS and SDBMS for geo-data handling<br>Interactive Session | Shri Dharmendra Kumar |
| 26/10/2020 | Monday | 1600-1700hrs<br>1700-1730 hrs | Basics of cyber infrastructure requirement for GIS, computing, storage, archive, network and firewall infrastructure in GIS lab<br>Interactive Session | Shri Kamal Pandey |
| 27/10/2020 | Tuesday | 1600-1700hrs<br>1700-1730 hrs | Crowdsourcing and participatory GIS using online tools & technologies<br>Interactive Session | Shri Kamal Pandey |
| 28/10/2020 | Wednesday | 1600-1700hrs<br>1700-1730 hrs | Practical Demonstration on: Virtual reality, 2D and 3D geo-visualizations in web platforms<br>Interactive Session | Dr. Harish C Karnatak |
| 29/10/2020 | Thursdays | 1600-1700hrs<br>1700-1730 hrs | Practical Demonstration on Introduction to Cloud GIS<br>Interactive Session | Shri Ravi Bhandari |

**Module/Course Name**- RS & GIS Applications
**Module/ Course Coordinator:** Shri C.M. Bhatt

| Date | Day | Time | Topic | Speaker |
|---|---|---|---|---|
| 02/11/2020 | Monday | 1600-1730 hrs | Applications of Remote Sensing & other Geospatial Technologies in Natural Resources Management, Development & Governance | Dr. S. K Srivastav |
| 03/11/2020 | Tuesday | 1600-1730 hrs | Remote Sensing Applications in Agriculture-Crop Inventory & Yield Forecasting | Dr. N.R. Patel |
| 05/11/2020 | Wednesday | 1600-1730 hrs | RS & GIS for Coastal Zone Management | Dr. D. Mitra |
| 06/11/2020 | Thursdays | 1600-1730 hrs | Remote Sensing Applications for Geological studies | Dr. R.S. Chatterjee |
| 09/11/2020 | Monday | 1600-1730 hrs | Space-enabled Products & Services for Disaster Management :Indian Initiatives | Dr. P.K.C.Ray |
| 10/11/2020 | Tuesday | 1600-1730 hrs | RS & GIS Application in Urban & Regional Planning | Shri. Pramod Kumar |
| 11/11/2020 | Wednesday | 1600-1730 hrs | Remote Sensing Application to Atmospheric & Marine Environment | Dr. A.K Mishra |
| 12/11/2020 | Thursdays | 1600-1730 hrs | RS & GIS Applications in Forestry and Ecology | Dr. Hitendra Padalia |
| 16/11/2020 | Monday | 1600 – 1730 hrs | RS applications for Planetary Studies | Dr. Prakash Chauhan |
| 17/11/2020 | Tuesday | 1600-1730 hrs | RS & GIS Applications to Water Resources Management | Dr. S.P Aggarwal |
| 18/11/2020 | Wednesday | 1600-1730 hrs | Geospatial Technology for climate change studies | Dr. Arijit Roy |
| 19/11/2020 | Thursdays | 1600-1730 hrs | Remote Sensing and GIS Applications in Soil Resource Assessment | Dr. Suresh Kumar |
| 20/11/2020 | Friday | 1600-1730 hrs | Panel Discussion Module-3 | All speakers |

Note: Details about the course, examination and latest schedule will be updated on below link:
https://www.iirs.gov.in/EDUSAT-News

## 32. Marathi Grammar (Marathi)

Akole Taluka Education Society's

**Agasti Arts, Commerce & Dadasaheb Rupwate Science College Akole**

Tal- Akole, Dist- Ahmednagar 422601

Department - Marathi

Activity Report :- २०१८-१९

| | |
|---|---|
| Activity Name | मराठी प्रमाणपत्र कार्यशाळा |
| Date | १ फेब्रुवारी ते ११ मार्च २०१९ |
| Organized by | मराठी विभाग |
| Activity for | विद्यार्थी |
| Type of Activity | मराठी व्याकरण कार्यशाळा |
| Objectives | १.मराठी व्याकरणविषयी आवड निर्माण करणे.<br>२. विद्यार्थ्यांना नवनवीन साहित्यिकांची ओळख करणे.<br>३. व्याकरणाचे नियम शिकविणे. |
| Brief information about activity | अगस्ती कला, वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालयातील मराठी विभागाच्या वतीने १ फेब्रुवारी ते ११ मार्च २०१९ रोजी मराठी व्याकरण कार्यशाळा आयोजित करण्यात आली. |
| Outcomes | १.मराठी व्याकरणविषयी आवड निर्माण झाली.<br>२. विद्यार्थ्यांना नवनवीन साहित्यिकांची ओळख झाली.<br>३. व्याकरणाचे नियम माहित झाले. |
| No. of Students | 39 |
| Analysis of Feedback | उत्तम प्रतिसाद |
| Report | अहवाल सत्र |
| Attachments | Photo, Attendance of Student & Teachers, News/ News Cutting, Feedback Form. |
| Other Information | नाही |

Head of Department/Activity.
डॉ.श्री.रंजना म.कदम
(मराठी विभाग प्रमुख)
अगस्ति कला, वाणिज्य व. दादासाहेब रुपवते
विज्ञान महाविद्यालय, अकोले, जि.अहमदनगर

AGASTI ARTS COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE EST. 1974 TAL. AKOLE DISTRICT AHEDNAGAR 422601

Principal,
प्राचार्य
अगस्ति कला, वाणिज्य व दादासाहेब रुपवते
विज्ञान महाविद्यालय, अकोले, जि.अहमदनगर - ४२२ ६०१

अकोले तालुका एज्युकेशन सोसायटीचे

**अगस्ति कला, वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालय, अकोले,**

**मराठी विभाग**

**विषय : मराठी व्याकरण अभ्यासक्रम (प्रमाणपत्र कोर्स )**

**(२०१८-१९)**

(तासिका ४०)

**उद्दिष्टये :-**

**१) मराठी भाषेवर प्रभुत्व प्राप्त करण्यासाठी विद्यार्थ्यांना व्याकरणाचे मुद्दे समजून देणे.**
**२) मराठी व्याकरणाच्या अधारे या भाषेचे वेगळेपण, वैशिष्टये स्वभाव, उच्चारण इ. अनेक घटकांची माहिती करुन देणे.**
**३) विद्यार्थ्यामधील व्याकरणाविषयीची मनातील भिती व शंका दूर करणे.**

**१) वर्णविचार:** ( तासिका ४)
१) वर्णमाला २) वर्णाचे प्रकार ३) स्वरांचे प्रकार ४) व्यंजनांचे प्रकार ५) वर्णाची उच्चारस्थाने.

**२) संधी :** ( तासिका ४)
१) स्वरसंधी २) व्यंजनसंधी ३) विसर्गसंधी ४) मराठीचे विशेष संधी

**३) शब्दविचार :** (तासिका १०)
१) शब्दविचार २) शब्द आणि पद ३) नामे ४) सामान्यनाम ५) विशेषण ६) क्रियापद ७) क्रियाविशेषण (८) शब्दयोगी ९) उभयान्वयी १० ) केवलप्रयोगी.

**४) समास:** (तासिका ४)
समासाचे प्रकार : १) अव्ययीभाव २) तत्पुरुष समास ३) व्दंद समास ४) बहुव्रीही समास

**५) वृते :** (तासिका ८)
१) गद्य व पद्य यातील फरक २) गणलेखनाची पध्दत ३) मात्रावृते उदाहरणे व लक्षणे ४) पद्यावर्तनी अर्ध समजाती ५) पद्यावर्तनी विषमजाती ६) भृंगावर्तनी समजाती ७) छंद ८) मुक्तछंद

**६) अलंकार :** (तासिका १०)
१. शब्दालंकार अनुप्रास, यमक, श्लेष
२. अर्थालंकार उपमा
३. उत्प्रेक्षा: अपन्हुती, रुपक, व्यतिरेक, अनन्वय, भ्रांतिमान, ससंदेह, अतिशयोक्ती, दृष्टांत अर्थान्तरन्यास, स्वभावोक्ती, अन्योक्ती, पर्यायोक्ती, विरोधाभास,असंगती, सार, व्याजस्तुती, व्याजोक्ती, चेतनगुणोक्ती

Dr. V. B. Kale

डॉ.सौ.रंजना म.कदम
(मराठी विभाग प्रमुख)
अगस्ति कला,वाणिज्य व दादासाहेब रुपवते
विज्ञान महाविद्यालय,अकोले,जि.अ.नगर

## 33. Dairy & Agriculture Chemistry (Chemistry)

Akole Taluka Education Society's,
Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole
Tal- Akole, Dist- Ahmednagar 422601

Department of Chemistry

**Activity Report (2018-19)**

| | |
|---|---|
| **Activity Name** | Certificate Course in Dairy & Agriculture Chemistry (CCDAC:2018-19) |
| **Date** | 15/01/2019 to 15/05/2019 |
| **Organized by** | Department of Chemistry, Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole.422601 |
| **Activity for** | T. Y. B. Sc.(Chemistry) Students |
| **Type of Activity** | Certificate Course (Offline) |
| **Objectives** | 1. Knowing importance of the subject from the point of rural economy.<br>2. Understanding the Microbiology of the milk, various preservation and adulterants, various milk proteins and their role for the human body.<br>3. Understand basic concept of soil, properties of soil. |
| **Outcomes** | 1. Students will be able to describe the scope of agriculture, soil components.<br>2. Students will also able to describe the composition of milk, identify the approximate content of individual types present and describe physicochemical characteristics of the main components.<br>3. Students will be able to use their knowledge of the chemistry of dairy components. |
| **No. of Students** | 80 |
| **Analysis of Feedback** | In feedback, students have mentioned the importance of the course in understanding the microbiology of the milk and basic concepts of soil chemistry. After completion of the course students are able to work in a dairy industry and soil analysis laboratory. |
| **Attachments** | Syllabus, Student list, Attendance of Student & Teachers, Question paper, Mark list, Certificate. |

**Head of Department/Activity,**
Head
Department of Chemistry
Agasti Arts,Comm. & Dadasaheb Rupwate
Science College,Akole,Dist.A'Nagar

**Principal**
PRINCIPAL
AGASTI ARTS, COMM. & DADASAHEB
RUPWATE SCIENCE COLLEGE, AKOLE
TAL AKOLE DIST A.NAGAR - 422 601

SAVITRIBAI PHULE PUNE UNIVERSITY

# DIPLOMA IN DAIRY & AGRICULTURAL CHEMISTRY

Organized by

## Department of Chemistry

Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole
Tal.- Akole, Dist.- Ahmednagar 422601

2018 – 2019

साहसे श्रीः प्रतिवसति|

Akole Taluka Education Society's

Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole. Tal: Akole, Dist: Ahmednagar (422 601)

DEPARTMENT OF CHEMISTRY

**Diploma in Dairy & Agricultural Chemistry (2018-19)**

**Objectives:**

**A) Learning Objectives of Dairy Chemistry**

The students are expected to study "Dairy Chemistry" in view of-

1. Knowing importance of the subject from the point of rural economy.
2. Knowing the composition of milk, its food & nutritive value.
3. Understanding the Microbiology of the milk.
4. Understanding various preservation and adulterants, various milk proteins and their role for the human body.
5. Knowing various milk products, their composition, manufacture and uses.

**B) Learning Objectives of Agriculture Chemistry**

The students are expected to study "Agricultural Chemistry" in view of-

1. Know the role of agriculture chemistry and its potential.
2. Understand basic concept of soil, properties of soil & its classification on the basis of pH.
3. Know the different plant nutrients, their functions and deficiency symptoms.
4. Understand importance of manures as compared to chemical fertilizers'.
5. Understand the importance of green manuring.
6. Have the knowledge of the use of proper the plants.
7. Know various techniques to protect the plants.
8. Have the knowledge of various pesticides, insecticides, fungicides and herbicides.
9. Identify the problematic soil and recommend method for their reclamation.
10. Have the knowledge of quality irrigation water, water quality standard and analysis of irrigation water.

**Prior Knowledge:**

Students should be familiar with the Milk components, their properties as well as basic milk processing operations. Students should also be familiar with the Agricultural terminologies, Soil components & their properties.

A brief review of some of these concepts will be done, especially in the context of Dairy & Agricultural Chemistry.

**Learning Outcomes:**

Students will be able to describe the scope of agriculture, soil components ( mineral matter, organic matter, soil air), functions of soil- Physical (colour, texture, structure, density, porosity etc.), chemical properties of soil, soil reaction (pH of soil- Acidic, Alkaline, Normal), Nutrition value of soil in terms of fertilizer & manures etc.

Students will also able to describe the composition of milk, identify the approximate content of individual types present and describe physicochemical characteristics of the main components. Student will be able to explain how dairy products (such as fluid milk, butter, cheese, ice-cream) are made and the key functions of the processing steps involved.

Students will be able to use their knowledge of the chemistry of dairy components (proteins, fats, lactose, salts) to evaluate the impact of processing conditions (e.g. heat, pH) on milk and dairy products.

**Recommended References:**

**Dairy Chemistry:**


1. Outline of Dairy Technology- Oxfored University press By- Sukumar De. (Edition-1983)
2. Dairy Chemistry and Animal Nutrition- M.M. Rai, Kalyani, Publishers, New Delhi 3rd Edition, 1980
3. Fundamentals of Dairy Chemistry- B.H. Webb, A.H. Hohsson, J.A. Alford, CBB Publishers and Distributors.
4. Milk and Milk Products- C.H. Eckles, H. Macy, Tata McGraw Hikk Publishing Company Ltd.
5. Chemistry and Testing of Dairy Products- H.V. Athertion, J.A. New Lander, CBS, Publishers and Distributors.


**Agricultural Chemistry:**


1. Text book of soil science, T.D. Biswas, S.K. Mukharjee, Tata McGraw Hill Publishing company, New Delhi
2. Introduction to Agronomy and soil, water management, V.G. Vaidya, K.R. Sahashtra Buddhe (Continental Prakashan)
3. Principals of soil science, M.M. Rai, Millian complex of India, Bombay, 1977
4. Manures and fertilizers (sixth ed), K.S. Yawalkar, J.P. Agarwal and Bokde, Agrihorticulture publishing house, Nagpur, India
5. Chemistry of insecticides and fungicides, U.S. Sreeramula (2nd Ed), oxford and IBH Publishing company, New Delhi
6. Fundamentals of soil sciences, C.E. Millar and L.M. Turk, Bio-Tech- New Delhi (1st Ed 2001)
7. Soil, Plant, Water and fertilizer analysis, P.K. Gupta, Published by Agro Botanica
8. A text book of soil science (Recise Ed) J.A. Daji, Revised by J.R. Adam, N.D. Patil, Media promoters and publishers, Mumabi, 1996

**Course Coordinator:**

Prof. Mahendra Dattatraya Banait, contact: +91 9423164551
e-mail: mbanait@rediffmail.com

**Instructors:**

1) Prof. Sandesh Dasharath Kasar, contact: +91 9404696296
   e-mail: sandeshkasar2012@gmail.com
2) Prof. Sadhana Madhav Bangal, contact: +91 9404696295
   e-mail: sandeshkasar2012@gmail.com
3) Prof. Pankaj Haribhau Naikwadi, contact: +91 9403598115
   e-mail: pankajnaikwadi2016@gmail.com
4) Prof. Arun Lahanu Wakchaure, contact: +91 7798095087
   e-mail: arunam23.19@gmail.com

**Course format and requirements:**

Apart from regular lectures we will conduct 48 theory lectures for dairy & agricultural chemistry (08 topics) & 10 practicals, which are correlated with theory knowledge.

**The marks will be distributed as follows:**

Theory Exam: 50 Marks (in the month of April 2019)

Practical Exam: 50 Marks (in the month of April 2019)

Total: 100 Marks

**Grading system:**

O: 90-100%

A: 80-89%

B: 70-79%

C: 60-69%

D: 50-59%

E: 40-49%

F: < 39%

**Who should take this course?**

- Under graduate students who have an interest in dairy & Agriculture.

## Syllabus of Diploma in Dairy & Agricultural Chemistry

### Dairy Chemistry

**Chapter 1) Market Milk** **(06 L)**

Introduction, Definition, constituents of milk of different species such as cow, buffalo, goat, etc., Chemical composition of milk of Indian breed and foreign breeds of cow, factor affecting composition of milk, characteristics of milk of different mammals, physicochemical properties of milk, acidity, pH, density, specific gravity, color and flavor of milk, food and nutritive value of milk. Microbiology of milk, growth of microorganism, stages of growth, product of microbial growth, destruction of microorganisms growth.

**Chapter 2) Milk Adulteration & Preservatives** **(06 L)**

1. Detection of Adulterants- Introduction, Modes of Adulteration and their detection such as skimming, addition of separated milk, skim milk, Water, Starch and cane sugar.
2. Common Preservative- Introduction, Common preservatives are used.

**Chapter 3) Milk Products (Cream, Butter, Cheese and Ice-Cream)** **(08 L)**

**A. Cream**- Definition, Classification, Composition, Food & Nutritive value, Physicochemical properties, Manufacture and uses of Cream.

**B. Butter**- Definition, Classification, Composition, Food & Nutritive value, Physicochemical properties, Manufacture and uses of Butter selection of milk/cream. Preheating of milk, Separating of milk, Neutralization of cream, Pasteurization of cream, Cooking & ageing, repending of cream, salting of butter, washing of butter, packaging & Storage, use of butter.

**C. Cheese**- Definition, Classification, Food & nutritive value, properties, Manufacture and uses of cheese.

**D. Ice-cream**- Definition, Classification, Composition, Food & Nutritive value, Manufacture, packing, hardening & Storage, uses of Ice-cream.

*** Reference Books:**


1) A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan
2) Outline of Dairy Technology- Oxfored University press By- Sukumar De. (Edition-1983)
3) Dairy Chemistry and Animal Nutrition- M.M. Rai, Kalyani, Publishers, New Delhi 3rd Edition, 1980
4) Fundamentals of Dairy Chemistry- B.H. Webb, A.H. Hohsson, J.A. Alford, CBB Publishers and Distributors.
5) Milk and Milk Products- C.H. Eckles, H. Macy, Tata McGraw Hikk Publishing Company Ltd.
6) Chemistry and Testing of Dairy Products- H.V. Athertion, J.A. New Lander, CBS, Publishers and Distributors.
7) Dairy Microbiology, Dr. K.C. MahantaOmsons Publication New Delhi.

# Agricultural Chemistry

**Chapter 1) Role & Scope of Agricultural Chemistry** **(01 L)**

**Chapter 2) Soil Chemistry** **(08 L)**

A) Definition of soil
B) Soil components-mineral component, organic matter or humus, soil atmosphere, soil water, soil microorganism
C) Functions of Soil- Physical, Chemical, Biological
D) Physical properties of soil- soil texture, soil structure, soil color, soil temp, soil density, porosity of soil.
E) Soil Solution- Definition, Composition & Soil Productivity
F) Soil reactions and its important
G) Factor controlling soil reaction, buffering capacity, importance of buffer action in agriculture, ion exchange

**Chapter 3) Manures and Fertilizers** **(07 L)**

**A) Manures**

1. Introduction, Definition and classification of manures
2. Effect of bulky organic manures on soil, farm yard manures (FYM), Factors affecting on FYM, method of preparation, losses during handling and storage
3. Biogas plant. Human waste, sewage and sludge, types of sludge, carbon nitrogen ratio, sewage irrigation and uses
4. Green manuring, types of green manuring, characteristics, advantages and disadvantages of green manuring
5. Biofertlizers: definition, classification, role & advantages

**B) Fertilizers**

1. Introduction, Definition, Classification of Fertilizers
2. Time and methods of fertilizers
3. Factors affecting efficiency of fertilizers
4. Nitrogenous Fertilizers, Phosphatic Fertilizers, Potasic Fertilizres, Complex Fertilizers
5. Synthetic fertilizers definition, comparison of synthetic fertilizers with organic fertilizers, environmental effect of synthetic fertilizers
6. Application of fertilizers

**Chapter 4) Problematic Soil and Soil testing** **(06 L)**

1. Different types of problematic soil & their improvement
2. Acid soil- formation of acid soil, effect of soil acidity of soil, reclamation of acidic soil
3. Alkali Soil- formation of alkali soil, reclamation of alkali soil
4. Classification of alkali soil- saline soil, saline alkali soil, non-saline alkali soil
5. Calcareous soils
6. Introduction to soil testing
7. Objectives of soil testing
8. Phases of soil testing- collection of soil sample, analysis in the laboratory and fertilizer applications

**Chapter 5) Protection of Plants** **(06 L)**

1. Insecticide- Definition, Classification, chemical properties, elemental composition, mode of action of synthetic and plant originated compounds organophosphates, malathion, parathion, carbamates, stomach poison, contact poison, systematic poison, fumigants,
2. Fungicides- Definition, Classification, Chemical properties, mode of action of fungicides
3. Herbicides- Definition, Classification, composition, mode of action of Selective and non-selective herbicides.

***Reference Books:**


1. A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan
2. Text book of soil science, T.D. Biswas, S.K. Mukharjee, Tata McGraw Hill Publishing company, New Delhi
3. Introduction to Agronomy and soil, water management, V.G. Vaidya, K.R. Sahashtra Buddhe (Continental Prakashan)
4. Principals of soil science, M.M. Rai, Millian complex of India, Bombay, 1977
5. Manures and fertilizers (sixth ed), K.S. Yawalkar, J.P. Agarwal and Bokde, Agrihorticulture publishing house, Nagpur, India
6. Chemistry of insecticides and fungicides, U.S. Sreeramula (2nd Ed), oxford and IBH Publishing company, New Delhi
7. Fundamentals of soil sciences, C.E. Millar and L.M. Turk, Bio-Tech- New Delhi (1st Ed 2001)
8. Soil, Plant, Water and fertilizer analysis, P.K. Gupta, Published by Agro Botanica
9. A text book of soil science (Recise Ed) J.A. Daji, Revised by J.R. Adam, N. D. Patil, Media promoters and publishers, Mumabi, 1996
10. Biofertilizers and Biopesticides , Author: Deshmukh, A. M. (Arvind Madhavrao)

**Dairy & Agricultural Chemistry (Practicals)**

1) Determination of pH & electrical conductivity of soil & total soluble salts.
2) Determination of calcium carbonate in soil by rapid titration method.
3) Determination of gypsum requirement of alkaline soil.
4) Determination of pH & electrical conductivity of irrigation water samples.
5) Determination of total hardness of water.
6) Determination of copper from copper fungicide.
7) Determination of specific gravity of milk by using specific gravity bottle.
8) Determination of casein in milk by Pynes formal titration method & calculation of the percentage of protein in milk.
9) Determination of saponification value of ghee.
10) Determination of preservatives in milk a) boric acid b) formaldehyde

***Reference Book:**

**1)** A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan

## 34. Dairy & Agriculture Chemistry (Chemistry)

Akole Taluka Education Society's,
Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole
Tal- Akole, Dist- Ahmednagar 422601

Department of Chemistry

**Activity Report (2017-18)**

| | |
|---|---|
| **Activity Name** | Certificate Course in Dairy & Agriculture Chemistry (CCDAC:2017-18) |
| **Date** | 02/04/2018 to 30/05/2018 |
| **Organized by** | Department of Chemistry, Agasti Arts, Commerce and Dadasaheb Rupwate Science College, Akole.422601 |
| **Activity for** | T. Y. B. Sc.(Chemistry) Students |
| **Type of Activity** | Certificate Course (Offline) |
| **Objectives** | 1. Knowing importance of the subject from the point of rural economy.<br>2. Understanding the Microbiology of the milk, various preservation and adulterants, various milk proteins and their role for the human body.<br>3. Understand basic concept of soil, properties of soil. |
| **Outcomes** | 1. Students will be able to describe the scope of agriculture, soil components.<br>2. Students will also able to describe the composition of milk, identify the approximate content of individual types present and describe physicochemical characteristics of the main components.<br>3. Students will be able to use their knowledge of the chemistry of dairy components. |
| **No. of Students** | 74 |
| **Analysis of Feedback** | In feedback, students were satisfied with the course. The course was found useful not only clearing the concepts of dairy science and agricultural chemistry but also in knowing the rural economy. |
| **Attachments** | Syllabus, Student list, Attendance of Student & Teachers, Question paper, Mark list, Certificate. |

Head of Department/Activity,
Head
Department of Chemistry
Agasti Arts, Comm. & Dadasaheb Rupwate Science College, Akole, Dist.A'Nagar

Principal
AGASTI ARTS, COMM. & DADASAHEB RUPWATE SCIENCE COLLEGE, AKOLE
TAL AKOLE. DIST A.NAGAR - 422 601

SAVITRIBAI PHULE PUNE UNIVERSITY

# CERTIFICATE COURSE IN DAIRY & AGRICULTURAL CHEMISTRY

Organized by

## Department of Chemistry

Agasti Arts, Commerce &DadasahebRupwate Science College, Akole
Tal.-Akole, Dist.- Ahmednagar 422601

2017-2018


साहसे श्रीः प्रतिवसति|

AkoleTaluka Education Society's

Agasti Arts, Commerce &DadasahebRupwate Science College, Akole.

Tal: Akole, Dist: Ahmednagar (422 601)

**DEPARTMENT OF CHEMISTRY**

## Certificate Course in Dairy &Agricultural Chemistry (2017-18)

**Objectives:**

**A) Learning Objectives of Dairy Chemistry**

The students are expected to study "Dairy Chemistry" in view of-

1. Knowing importance of the subject from the point of rural economy.
2. Knowing the composition of milk, its food & nutritive value.
3. Understanding the Microbiology of the milk.
4. Understanding various preservation and adulterants, various milk proteins and theirrole for the human body.
5. Knowing various milk products, their composition, manufacture and uses.

**B) Learning Objectives of Agriculture Chemistry**

The students are expected to study "Agricultural Chemistry" in view of-

1. Know the role of agriculture chemistry and its potential.
2. Understand basic concept of soil, properties of soil & its classification on the basis of pH.
3. Know the different plant nutrients, their functions and deficiency symptoms.
4. Understand importance of manures as compared to chemical fertilizers'.
5. Understand the importance of green manuring.
6. Have the knowledge of the use of proper the plants.
7. Know various techniques to protect the plants.
8. Have the knowledge of various pesticides, insecticides, fungicides and herbicides.
9. Identify the problematic soil and recommend method for their reclamation.
10. Have the knowledge of quality irrigation water, water quality standard and analysis of irrigation water.


**Prior Knowledge:**

Students should be familiar with the Milk components, their properties as well as basic milk processing operations.Students should also be familiar with the Agricultural terminologies, Soil components & their properties.

A brief review of some of these concepts will be done, especially in the context of Dairy & Agricultural Chemistry.

**Learning Outcomes:**

Students will be able to describe the scope of agriculture, soil components ( mineral matter, organic matter, soil air), functions of soil- Physical (colour, texture, structure, density, porosity etc.), chemical properties of soil, soil reaction (pH of soil- Acidic, Alkaline, Normal), Nutrition value of soil in terms of fertilizer & manures etc.

Students will also able to describe the composition of milk, identify the approximate content ofindividual types present and describe physicochemical characteristics of the main components. Student will be able to explain how dairy products (such as fluid milk, butter, cheese, ice-cream) are made and the key functions of the processing steps involved.

Students will be able to use their knowledge of the chemistry of dairy components (proteins, fats, lactose, salts) to evaluate the impact of processing conditions (e.g. heat, pH) on milk and dairy products.

**Recommended References:**

**A) Dairy Chemistry:**

1. Outline of Dairy Technology- Oxford University press By- Sukumar De. (Edition-1983)
2. Dairy Chemistry and Animal Nutrition- M.M. Rai, Kalyani, Publishers, New Delhi 3rd Edition, 1980
3. Fundamentals of Dairy Chemistry- B.H. Webb, A.H. Hohsson, J.A. Alford, CBB Publishers and Distributors.
4. Milk and Milk Products- C.H. Eckles, H. Macy, Tata McGraw Hikk Publishing Company Ltd.
5. Chemistry and Testing of Dairy Products- H.V. Athertion, J.A. New Lander, CBS, Publishers and Distributors.

**B) Agricultural Chemistry:**

1. Text book of soil science, T.D. Biswas, S.K. Mukharjee, Tata McGraw Hill Publishing company, New Delhi
2. Introduction to Agronomy and soil, water management, V.G. Vaidya, K.R. Sahashtra Buddhe (Continental Prakashan)
3. Principals of soil science, M.M. Rai, Millian complex of India, Bombay, 1977
4. Manures and fertilizers (sixth ed), K.S. Yawalkar, J.P. Agarwal and Bokde, Agrihorticulturepublishing house, Nagpur, India

5. Chemistry of insecticides and fungicides, U.S. Sreeramula (2nd Ed), oxford and IBH Publishing company, New Delhi
6. Fundamentals of soil sciences, C.E. Millar and L.M. Turk, Bio-Tech- New Delhi (1st Ed 2001)
7. Soil, Plant, Water and fertilizer analysis, P.K. Gupta, Published by Agro Botanica
8. A text book of soil science (Revise Ed) J.A. Daji, Revised by J.R. Adam, N.D. Patil, Media promoters and publishers, Mumbai, 1996

**Course Coordinator:**

1) Prof. MahendraDattatrayaBanait, contact: +919423164551
e-mail: mahendrabanait@gmail.com

**Instructors:**

2) Prof. SandeshDasharathKasar, contact: +91 9404696296
e-mail: sandeshkasar2012@gmail.com
3) Prof. SadhanaMadhavBangal, contact: +91 9404696295
e-mail: sandeshkasar2012@gmail.com
4) Prof. PankajHaribhauNaikwadi, contact: +91 9403598115
e-mail: pankajnaikwadi2016@gmail.com
5) Prof. ArunLahanuWakchaure, contact: +91 7798095087
e-mail: arunam23.19@gmail.com

**Course format and requirements:**

Apart from regular lectures we will conduct 48 theory lectures for dairy & agricultural chemistry (08 topics) & 10 practicals, which are correlated with theory knowledge.

**The marks will be distributed as follows:**

Theory Exam: 50 Marks

Practical Exam: 50 Marks

Total:100 Marks

**Grading system:**

O: 90-100%
A: 80-89%
B: 70-79%
C: 60-69%
D: 50-59%
E: 40-49%
F: < 39%


## Syllabus of Certificate Course in Dairy & Agricultural Chemistry (48 Lectures)

### A) Dairy Chemistry

**Chapter 1) Market Milk** **(06 L)**

Introduction, Definition, constituents of milk of different species such as cow, buffalo, goat, etc., Chemical composition of milk of Indian breed and foreign breeds of cow, factor affecting composition of milk, characteristics of milk of different mammals, physicochemical properties of milk, acidity, pH, density, specific gravity, color and flavor of milk, food and nutritive value of milk. Microbiology of milk, growth of microorganism, stages of growth, product of microbial growth, destruction of microorganisms growth.

**Chapter 2) Milk Adulteration & Preservatives** **(06 L)**

1. Detection of Adulterants- Introduction, Modes of Adulteration and their detection such as skimming, addition of separated milk, skim milk, Water, Starch and cane sugar.
2. Common Preservative- Introduction, Common preservatives are used.

**Chapter 3) Milk Products (Cream, Butter, Cheese and Ice-Cream)** **(08 L)**

**A. Cream-** Definition, Classification, Composition, Food & Nutritive value, Physicochemical properties, Manufacture and uses of Cream.

**B. Butter-** Definition, Classification, Composition, Food & Nutritive value, Physicochemical properties, Manufacture and uses of Butter selection of milk/cream. Preheating of milk, Separating of milk, Neutralization of cream, Pasteurization of cream, Cooking & ageing, repending of cream, salting of butter, washing of butter, packaging & Storage, use of butter.

**C. Cheese-** Definition, Classification, Food & nutritive value, properties, Manufacture and uses of cheese.

**D. Ice-cream-** Definition, Classification, Composition, Food & Nutritive value, Manufacture, packing, hardening & Storage, uses of Ice-cream.

*** Reference Books:**

1) A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan
2) Outline of Dairy Technology- Oxfored University press By- Sukumar De. (Edition-1983)
3) Dairy Chemistry and Animal Nutrition- M.M. Rai, Kalyani, Publishers, New Delhi 3rd Edition, 1980
4) Fundamentals of Dairy Chemistry- B.H. Webb, A.H. Hohsson, J.A. Alford, CBB Publishers and Distributors.


5) Milk and Milk Products- C.H. Eckles, H. Macy, Tata McGraw Hikk Publishing Company Ltd.

6) Chemistry and Testing of Dairy Products- H.V. Athertion, J.A. New Lander, CBS, Publishers and Distributors.

7) Dairy Microbiology, Dr. K.C. MahantaOmsons Publication New Delhi.

## B) Agricultural Chemistry

**Chapter 1) Role & Scope of Agricultural Chemistry** **(01 L)**

**Chapter 2) Soil Chemistry** **(08 L)**

A) Definition of soil
B) Soil components-mineral component, organic matter or humus, soil atmosphere, soil water, soil microorganism
C) Functions of Soil- Physical, Chemical, Biological
D) Physical properties of soil- soil texture, soil structure, soil color, soil temp, soil density, porosity of soil.
E) Soil Solution- Definition, Composition & Soil Productivity
F) Soil reactions and its important
G) Factor controlling soil reaction, buffering capacity, importance of buffer action in agriculture. ion exchange

**Chapter 3) Manures and Fertilizers** **(07 L)**

**A) Manures**

1. Introduction, Definition and classification of manures
2. Effect of bulky organic manures on soil, farm yard manures (FYM), Factors affecting on FYM, method of preparation, losses during handling and storage
3. Biogas plant. Human waste, sewage and sludge, types of sludge, carbon nitrogen ratio, sewage irrigation and uses
4. Green manuring, types of green manuring, characteristics, advantages and disadvantages of green manuring
5. Biofertlizers: definition, classification, role & advantages


**B) Fertilizers**

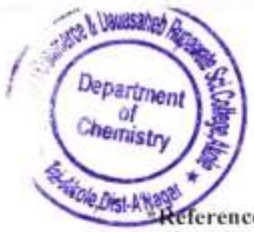
1. Introduction, Definition, Classification of Fertilizers
2. Time and methods of fertilizers
3. Factors affecting efficiency of fertilizers
4. Nitrogenous Fertilizers, Phosphatic Fertilizers, Potasic Fertilizres, Complex Fertilizers
5. Synthetic fertilizers definition, comparison of synthetic fertilizers with organic fertilizers, environmental effect of synthetic fertilizers
6. Application of fertilizers

**Chapter 4) Problematic Soil and Soil testing** **(06 L)**

1. Different types of problematic soil & their improvement
2. Acid soil- formation of acid soil, effect of soil acidity of soil, reclamation of acidic soil
3. Alkali Soil- formation of alkali soil, reclamation of alkali soil
4. Classification of alkali soil- saline soil, saline alkali soil, non-saline alkali soil
5. Calcareous soils
6. Introduction to soil testing
7. Objectives of soil testing
8. Phases of soil testing- collection of soil sample, analysis in the laboratory and fertilizer applications

**Chapter 5) Protection of Plants** **(06 L)**

1. Insecticide- Definition, Classification, chemical properties, elemental composition, mode of action of synthetic and plant originated compounds organophosphates, malathion, parathion, carbamates, stomach poison, contact poison, systematic poison, fumigants,
2. Fungicides- Definition, Classification, Chemical properties, mode of action of fungicides
3. Herbicides- Definition, Classification, composition, mode of action of Selective and non-selective herbicides.




**Reference Books:**

1. A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan
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3. Introduction to Agronomy and soil, water management, V.G. Vaidya, K.R. Sahashtra Buddhe (Continental Prakashan)
4. Principals of soil science, M.M. Rai, Millian complex of India, Bombay, 1977
5. Manures and fertilizers (sixth ed), K.S. Yawalkar, J.P. Agarwal and Bokde, Agrihorticulture publishing house, Nagpur, India
6. Chemistry of insecticides and fungicides, U.S. Sreeramula (2nd Ed), oxford and IBH Publishing company, New Delhi
7. Fundamentals of soil sciences, C.E. Millar and L.M. Turk, Bio-Tech- New Delhi (1st Ed 2001)
8. Soil, Plant, Water and fertilizer analysis, P.K. Gupta, Published by Agro Botanica
9. A text book of soil science (Revise Ed) J.A. Daji, Revised by J.R. Adam, N. D. Patil, Media promoters and publishers, Mumbai, 1996
10. Biofertilizers and Biopesticides, Author: Deshmukh, A. M. (Arvind Madhavrao)


**Dairy & Agricultural Chemistry (Practicals)**

1) Determination of pH & electrical conductivity of soil & total soluble salts.
2) Determination of calcium carbonate in soil by rapid titration method.
3) Determination of gypsum requirement of alkaline soil.
4) Determination of pH & electrical conductivity of irrigation water samples.
5) Determination of total hardness of water.
6) Determination of copper from copper fungicide.
7) Determination of specific gravity of milk by using specific gravity bottle.
8) Determination of casein in milk by Pynes formal titration method & calculation of the percentage of protein in milk.
9) Determination of saponification value of ghee.
10) Determination of preservatives in milk a) boric acid b) formaldehyde

***Reference Book:**

**1)** A Text Book of Agricultural & Dairy Chemistry by Chatrath, Gokule, Shinde, Date, Adhav, Manali Prakashan.


साहसे श्रीः प्रतिवसति।

Akole Taluka Education Society's

Agasti Arts, Commerce & Dadasaheb Rupwate Science College, Akole. Tal: Akole, Dist: Ahmednagar (422 601)

DEPARTMENT OF CHEMISTRY

**Certificate Course in Dairy & Agricultural Chemistry (2017-18)**

## Dairy Chemistry

### Learning Objectives of Dairy Chemistry

The students are expected to study "Dairy Chemistry" in view of-

1. Knowing importance of the subject from the point of rural economy.
2. Knowing the composition of milk, its food & nutritive value.
3. Understanding the Microbiology of the milk.
4. Understanding various preservation and adulterants, various milk proteins and their role for the human body.
5. Knowing various milk products, their composition, manufacture and uses.

## Agriculture Chemistry

### Learning Objectives of Agriculture Chemistry

The students are expected to study "Agricultural Chemistry" in view of-

1. Know the role of agriculture chemistry and its potential.
2. Understand basic concept of soil, properties of soil & its classification on the basis of pH.
3. Know the different plant nutrients, their functions and deficiency symptoms.
4. Understand importance of manures as compared to chemical fertilizers'.
5. Understand the importance of green manuring.
6. Have the knowledge of the use of proper the plants.
7. Know various techniques to protect the plants.
8. Have the knowledge of various pesticides, insecticides, fungicides and herbicides.
9. Identify the problematic soil and recommend method for their reclamation.
10. Have the knowledge of quality irrigation water, water quality standard and analysis of irrigation water.

## 35. Basics of Remote Sensing, Geographical Information System and Global Navigation Satellite System (IIRS)

| | | | | |
|---|---|---|---|---|
| 30 Oct 17 | Monday | 1500-1545hrs | Interactive Session of Demo of QGIS Software – Session 01 & Session 02 | Shri P K Gupta |
| | | 1600-1730 hrs | Open Source S/w Technology & Tools | Shri P K Gupta |
| 31 Oct 17 | Tuesday | 1600-1730 hrs | Data Quality &Policies OGC, NSDI & GSDI initiatives. Discussion on Internet resources | Dr. Harish Karnatak |
| 01 Nov 17 | Wednesday | 1600-1730 hrs | Spatial Data Management using RDBMS-Demo on PostGRE SQL+ Post GIS | Shri Kapil Oberai |
| **02 Nov 17** | Thursday | 1600-1730 hrs | 3D GIS and Application including Trivim | Shri Shiva Reddy |
| 03 Nov 17 | Friday | 1600-1730 hrs | Geo-Web Services Technical Concepts and Applications | Dr. Harish Karnatak |
| **04 Nov 17** | **Saturday – Guru Nanak Birthday** | | | |
| **05 Nov 17** | **Sunday** | | | |
| 06 Nov 17 | Monday | 1600-1730 hrs | Uncertainty in GIS and Error Propagation | Shri Hari Shankar |
| **07 Nov 17** | Tuesday | 1600-1730 hrs | Customization in GIS | Shri Kamal Pandey |
| **08 Nov 17** | Wednesday | 1600-1730 hrs | Recent Trends in Geoinformatics | Dr. Sameer Saran |
| 09 Nov 17 | Thursday | 1600-1730 hrs | Panel Discussion of Module 2 | Faculty of Module-2 |
| 10 Nov 17 | Friday | 9.30 Hrs to 17.00 Hrs | *Online Exam Module-2 : Global Navigation Satellite System and Geographical Information System | Edusat Team |

| Module-3 RS & GIS Applications<br>Module/ Course Coordinator: Dr. Arijit Roy | | | | |
|---|---|---|---|---|
| **Date** | **Day** | **Time** | **Topic** | **Speaker** |
| 13 Nov 17 | Monday | 1600-1730 hrs | Space Technology & its applications in governance | Dr. S. K. Srivastav |
| 14 Nov 17 | Tuesday | 1600-1730 hrs | Remote Sensing and GIS Applications in Soil Resource Assessment | Dr. Suresh Kumar |
| 15 Nov 17 | Wednesday | 1600-1730 hrs | Remote Sensing Applications in Agriculture- Crop Inventory & Yield Forecasting | Dr. N.R. Patel |
| 16 Nov 17 | Thursday | 1600-1730 hrs | RS & GIS Applications in Forestry and Ecology | Dr. Sarnam Singh |
| 17 Nov 17 | Friday | 1600-1730 hrs | Engineering Geology with emphasis on landslide studies | Dr. Shovan Chatterji |
| **18 Nov 17** | **Saturday** | | | |
| **19 Nov 17** | **Sunday** | | | |
| 20 Nov 17 | Monday | 1600-1730 hrs | Geology and Geomorphology | Dr. R.S. Chatterjee |
| 21 Nov 17 | Tuesday | 1600-1730 hrs | Space-enabled Products & Services for Disaster Management Indian Initiatives | Dr. P.K.C. Ray |
| 22 Nov 17 | Wednesday | 1600-1730 hrs | Geospatial Technology for climate change studies | Dr. Arijit Roy |
| 23 Nov 17 | Thursday | 1600-1730 hrs | RS & GIS Applications to Water Resources Management | Dr. S.P Aggarwal |
| 24 Nov 17 | Friday | 1600-1730 hrs | RS & GIS for Coastal Zone Management | Dr. D. Mitra |
| **25 Nov 17** | **Saturday** | | | |
| **26 Nov 17** | **Sunday** | | | |
| 27 Nov 17 | Monday | 1600-1730 hrs | Remote Sensing Application to Atmospheric & Marine Environment | Dr. A.K Mishra |
| 28 Nov 17 | Tuesday | 1600-1730 hrs | RS & GIS Application in Urban & Regional Planning | Dr. Pramod Kumar |
| 29 Nov 17 | Wednesday | 1600-1730 hrs | Geo-web Services and mobile GIS in governance | Dr. Harish Karnatak |
| 30 Nov 17 | Thursday | 1600-1730 hrs | Panel Discussion Module-3 | Faculty of Module-3 |
| 04 Dec 17 | Monday | 9.30 Hrs to 17.00 Hrs | Online Examination Module-3 -RS & GIS Applications | Edusat Team |
| 08 Dec 17 | Friday | 9.30 Hrs to 17.00 Hrs | *Online Examination of Basic of RS, GIS & GNSS – All module Complete Course | Edusat Team |

**There will be one exam for each Course in which you have applied .**

| Module- 2 Global Navigation Satellite System and Geographical Information System: Module/ Course Coordinator: Shri Ashutosh Bhardwaj & Shri Prasun Kumar Gupta | | | | |
|---|---|---|---|---|
| 25 Sep 17 | Monday | 1600-1730 hrs | Introduction to GPS and GNSS | Er. Ashutosh Bhardwaj |
| 26 Sep 17 | Tuesday | 1600-1730 hrs | GPS receivers, processing methods, errors and accuracy | Er. Ashutosh Bhardwaj |
| 27 Sep 17 | Wednesday | 1600-1730 hrs | Satellites based Augmentation systems & GPS Aided and GEO Augmented Navigation (GAGAN) | Er. Ashutosh Bhardwaj |
| 28 Sep 17 | Thursday | 1600-1730 hrs | GPS signal characteristics, Data formats (broadcast, precise ephemeris) | Shri S. Raghavendra |
| **29 Sep 17** | | | **BREAK** | |
| 30 Sep 17 | **Dussehra -Saturday** | | | |
| 01 Oct 17 | **Sunday** | | | |
| **02 Oct 17** | **Monday** | | **Gandhi Jayanthi** | |
| **Date** | **Day** | **Time** | **Topic** | **Speaker** |
| 03 Oct 17 | Tuesday | 1600-1730 hrs | Indian Regional Navigation Satellite System (IRNSS) | Er. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 04Oct 17 | Wednesday | 1600-1730 hrs | DGPS demonstration (Pre-recorded followed by live query session) | Shri S. Raghavendra |
| 05 Oct 17 | Thursday | 1600-1730 hrs | Mobile Mapping | Dr. Harish Chandra Karnatak |
| 06 Oct 17 | Friday | | **BREAK** | |
| **07 Oct 17** | **Saturday** | | | |
| **08 Oct 17** | **Sunday** | | | |
| **Geographical Information System Module/ Course Coordinator: Shri Prasun Kumar Gupta** | | | | |
| 09 Oct 17 | Monday | 1600-1730 hrs | Introduction to GIS | Dr. Sameer Saran |
| 10 Oct 17 | Tuesday | 1600-1730 hrs | Geographic Phenomena, Concepts and examples | Shri P K Gupta |
| 11 Oct 17 | Wednesday | 1600-1730 hrs | Data Inputting and Editing in GIS | Shri Shiva Reddy |
| 12 Oct 17 | Thursday | 1600-1730 hrs | GIS Data Models (Spatial and Non spatial) | Shri Ashutosh Kumar Jha |
| 13 Oct 17 | Friday | 1600-1730 hrs | Map Projection Concepts & Use in RS & GIS | Dr. Ashutosh Srivastav |
| 14 Oct 17 | Saturday | | | |
| 15 Oct 17 | Sunday | | | |
| 16 Oct 17 | Monday | 1600-1730 hrs | Spatial Analysis- Introductory Concepts and Overview | Shri Prabhhar Alok Verma |
| 17 Oct 17 | Tuesday | 1600-1730 hrs | Spatial Analysis- Functionality and Tools | Shri Kapil Oberai |
| **18 Oct 17** | **BREAK** | | | |
| **19 Oct 17** | **Diwali** | | | |
| **20 Oct 17** | **BREAK** | | | |
| **21 Oct 17** | **Saturday** | | | |
| **22 Oct 17** | **Sunday** | | | |
| 23 Oct 17 | Monday | | **BREAK** | |
| 24 Oct 17 | Tuesday | | **BREAK** | |
| 25 Oct 17 | Wednesday | | **BREAK** | |
| 26 Oct 17 | Thursday | 1600-1730 hrs | Demo of QGIS Software – Session 01 | Recorded Lecture Through FTP will be played by University coordinator |
| 27 Oct 17 | Friday | 1600-1730 hrs | Demo of QGIS Software – Session 02 (Data Creation/Vector Generation) | Recorded Lecture Through FTP will be played by University coordinator |
| **28 Oct 17** | **Saturday** | | | |
| **29 Oct 17** | **Sunday** | | | |

| Module 1: Remote Sensing & Digital Image Analysis<br>Module/ Course Coordinator: Ms. Minakshi Kumar | | | | |
|---|---|---|---|---|
| **Date** | **Day** | **Time** | **Topic** | **Speaker** |
| 21 Aug 17 | Monday | 1600-1730 hrs | Course Inauguration and Introductory Lecture | Dr. A. Senthil Kumar |
| 22 Aug 17 | Tuesday | 1600-1730 hrs | Basic Principles of Remote Sensing | Mrs. Mamn Mehta |
| 23 Aug 17 | Wednesday | 1600-1730 hrs | Earth Observation Sensors and Platforms | Mr. Vinay Kumar |
| 24 Aug 17 | Thursday | 1600-1730 hrs | Thermal Remote Sensing | Dr. Yogesh Kant |
| **25 Aug 17** | **Ganesh Chaturthi** | | | |
| **26 Aug 17** | **Saturday** | | | |
| **27 Aug 17** | **Sunday** | | | |
| 28 Aug 17 | Monday | 1600-1730 hrs | Spectral Signatures of Different Land cover Features and Visual Image interpretation | Dr. Hina Pande |
| 29 Aug 17 | Tuesday | Offline (Morning Session) | RS and Image Interpretation Practical | By University Coordinator |
| **30 Aug 17** | **Wednesday** | **BREAK** | | |
| 31 Aug 17 | Thursday | 1600-1730 hrs | Digital Image Processing Basic Concepts Rectification and Registration | Mrs. Minakshi Kumar |
| 01 Sep 17 | Friday | 1600-1730 hrs | Image Enhancement techniques | Dr. Poonam S. Tiwari |
| | | | | |
| **02 Sep 17** | **Saturday** | | | |
| **03 Sep 17** | **Sunday** | | | |
| **04 Sep 17** | **Monday** | **BREAK-ONAM** | | |
| 05 Sep 17 | Tuesday | 1600-1730 hrs | Image Classification Techniques and Accuracy Assessment | Dr. Poonam S. Tiwari |
| 06 Sep 17 | Wednesday | 1600-1730 hrs | Microwave Remote Sensing | Mr. Shashi Kumar |
| 07 Sep 17 | Thursday | 1600-1730 hrs | Hyperspectral Remote Sensing | Mrs. Shefali Agarwal |
| 08 Sep 17 | Friday | Offline - as per computer lab availability Morning Session | Image Processing Hands-on and Practical Assignment | By University Coordinator |
| 09 Sep 17 | Saturday | | | |
| 10 Sep 17 | Sunday | | | |
| 11 Sep 17 | Monday | 1600-1730 hrs | Demonstration Image Processing | Mrs. Minakshi Kumar |
| 12 Sep 17 | Tuesday | Offline - as per computer lab availability | Practical Assignment submission by Participants to respective coordinators and evaluation to be done by respective coordinators | University coordinator |
| 13 Sep 17 | Wednesday | 1600-1730 hrs | Panel Discussion Module-1 | Faculty of Module-1 |
| 14 Sep 17 | | | **BREAK For Examination** | |
| 15 Sep 17 | Friday | 9.30 Hrs to 17.00 Hrs | *Online Examination of Module-1 | Edusat Team |

## 36. Remote Sensing and Digital Analysis (IIRS)

| Module 1: Remote Sensing & Digital Image Analysis<br>Module/ Course Coordinator: Ms. Minakshi Kumar | | | | |
|---|---|---|---|---|
| **Date** | **Day** | **Time** | **Topic** | **Speaker** |
| 21 Aug 17 | Monday | 1600-1730 hrs | Course Inauguration and Introductory Lecture | Dr. A. Senthil Kumar |
| 22 Aug 17 | Tuesday | 1600-1730 hrs | Basic Principles of Remote Sensing | Mrs. Mann Mehta |
| 23 Aug 17 | Wednesday | 1600-1730 hrs | Earth Observation Sensors and Platforms | Mr. Vinay Kumar |
| 24 Aug 17 | Thursday | 1600-1730 hrs | Thermal Remote Sensing | Dr. Yogesh Kant |
| **25 Aug 17** | **Ganesh Chaturthi** | | | |
| **26 Aug 17** | **Saturday** | | | |
| **27 Aug 17** | **Sunday** | | | |
| 28 Aug 17 | Monday | 1600-1730 hrs | Spectral Signatures of Different Land cover Features and Visual Image interpretation | Dr. Hina Pande |
| 29 Aug 17 | Tuesday | Offline (Morning Session) | RS and Image Interpretation Practical | By University Coordinator |
| **30 Aug 17** | **Wednesday** | **BREAK** | | |
| 31 Aug 17 | Thursday | 1600-1730 hrs | Digital Image Processing Basic Concepts Rectification and Registration | Mrs. Minakshi Kumar |
| 01 Sep 17 | Friday | 1600-1730 hrs | Image Enhancement techniques | Dr. Poonam S. Tiwari |
| | | | | |
| **02 Sep 17** | **Saturday** | | | |
| **03 Sep 17** | **Sunday** | | | |
| **04 Sep 17** | **Monday** | **BREAK-ONAM** | | |
| 05 Sep 17 | Tuesday | 1600-1730 hrs | Image Classification Techniques and Accuracy Assessment | Dr. Poonam S. Tiwari |
| 06 Sep 17 | Wednesday | 1600-1730 hrs | Microwave Remote Sensing | Mr. Shashi Kumar |
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| 08 Sep 17 | Friday | Offline - as per computer lab availability Morning Session | Image Processing Hands-on and Practical Assignment | By University Coordinator |
| 09 Sep 17 | Saturday | | | |
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| 13 Sep 17 | Wednesday | 1600-1730 hrs | Panel Discussion Module-1 | Faculty of Module-1 |
| 14 Sep 17 | | | **BREAK For Examination** | |
| 15 Sep 17 | Friday | 9:30 Hrs to 17:00 Hrs | *Online Examination of Module-1 | Edusat Team |

| Module- 2 Global Navigation Satellite System and Geographical Information System: Module/ Course Coordinator: Shri Ashutosh Bhardwaj & Shri Prasun Kumar Gupta | | | | |
|---|---|---|---|---|
| 25 Sep 17 | Monday | 1600-1730 hrs | Introduction to GPS and GNSS | Er. Ashutosh Bhardwaj |
| 26 Sep 17 | Tuesday | 1600-1730 hrs | GPS receivers, processing methods, errors and accuracy | Er. Ashutosh Bhardwaj |
| 27 Sep 17 | Wednesday | 1600-1730 hrs | Satellites based Augmentation systems & GPS Aided and GEO Augmented Navigation (GAGAN) | Er. Ashutosh Bhardwaj |
| 28 Sep 17 | Thursday | 1600-1730 hrs | GPS signal characteristics, Data formats (broadcast, precise ephemeris) | Shri S. Raghavendra |
| **29 Sep 17** | | | **BREAK** | |
| 30 Sep 17 | **Dussehra -Saturday** | | | |
| 01 Oct 17 | **Sunday** | | | |
| **02 Oct 17** | **Monday** | | **Gandhi Jayanthi** | |
| **Date** | **Day** | **Time** | **Topic** | **Speaker** |
| 03 Oct 17 | Tuesday | 1600-1730 hrs | Indian Regional Navigation Satellite System (IRNSS) | Er. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 04Oct 17 | Wednesday | 1600-1730 hrs | DGPS demonstration (Pre-recorded followed by live query session) | Shri S. Raghavendra |
| 05 Oct 17 | Thursday | 1600-1730 hrs | Mobile Mapping | Dr. Harish Chandra Karnatak |
| 06 Oct 17 | Friday | | **BREAK** | |
| **07 Oct 17** | **Saturday** | | | |
| **08 Oct 17** | **Sunday** | | | |
| **Geographical Information System Module/ Course Coordinator: Shri Prasun Kumar Gupta** | | | | |
| 09 Oct 17 | Monday | 1600-1730 hrs | Introduction to GIS | Dr. Sameer Saran |
| 10 Oct 17 | Tuesday | 1600-1730 hrs | Geographic Phenomena, Concepts and examples | Shri P K Gupta |
| 11 Oct 17 | Wednesday | 1600-1730 hrs | Data Inputting and Editing in GIS | Shri Shiva Reddy |
| 12 Oct 17 | Thursday | 1600-1730 hrs | GIS Data Models (Spatial and Non spatial) | Shri Ashutosh Kumar Jha |
| 13 Oct 17 | Friday | 1600-1730 hrs | Map Projection Concepts & Use in RS & GIS | Dr. Ashutosh Srivastav |
| 14 Oct 17 | Saturday | | | |
| 15 Oct 17 | Sunday | | | |
| 16 Oct 17 | Monday | 1600-1730 hrs | Spatial Analysis- Introductory Concepts and Overview | Shri Prabhhar Alok Verma |
| 17 Oct 17 | Tuesday | 1600-1730 hrs | Spatial Analysis- Functionality and Tools | Shri Kapil Oberai |
| **18 Oct 17** | **BREAK** | | | |
| **19 Oct 17** | **Diwali** | | | |
| **20 Oct 17** | **BREAK** | | | |
| **21 Oct 17** | **Saturday** | | | |
| **22 Oct 17** | **Sunday** | | | |
| 23 Oct 17 | Monday | | **BREAK** | |
| 24 Oct 17 | Tuesday | | **BREAK** | |
| 25 Oct 17 | Wednesday | | **BREAK** | |
| 26 Oct 17 | Thursday | 1600-1730 hrs | Demo of QGIS Software – Session 01 | Recorded Lecture Through FTP will be played by University coordinator |
| 27 Oct 17 | Friday | 1600-1730 hrs | Demo of QGIS Software – Session 02 (Data Creation/Vector Generation) | Recorded Lecture Through FTP will be played by University coordinator |
| **28 Oct 17** | **Saturday** | | | |
| **29 Oct 17** | **Sunday** | | | |

| | | | | |
|---|---|---|---|---|
| 30 Oct 17 | Monday | 1500-1545hrs | Interactive Session of Demo of QGIS Software – Session 01 & Session 02 | Shri P K Gupta |
| | | 1600-1730 hrs | Open Source S/w Technology & Tools | Shri P K Gupta |
| 31 Oct 17 | Tuesday | 1600-1730 hrs | Data Quality &Policies OGC, NSDI & GSDI initiatives. Discussion on Internet resources | Dr. Harish Karnatak |
| 01 Nov 17 | Wednesday | 1600-1730 hrs | Spatial Data Management using RDBMS-Demo on PostGRE SQL + Post GIS | Shri Kapil Oberai |
| **02 Nov 17** | Thursday | 1600-1730 hrs | 3D GIS and Application including Trivim | Shri Shiva Reddy |
| 03 Nov 17 | Friday | 1600-1730 hrs | Geo-Web Services Technical Concepts and Applications | Dr. Harish Karnatak |
| **04 Nov 17** | **Saturday – Guru Nanak Birthday** | | | |
| **05 Nov 17** | **Sunday** | | | |
| 06 Nov 17 | Monday | 1600-1730 hrs | Uncertainty in GIS and Error Propagation | Shri Hari Shankar |
| **07 Nov 17** | Tuesday | 1600-1730 hrs | Customization in GIS | Shri Kamal Pandey |
| **08 Nov 17** | Wednesday | 1600-1730 hrs | Recent Trends in Geoinformatics | Dr. Sameer Saran |
| 09 Nov 17 | Thursday | 1600-1730 hrs | Panel Discussion of Module 2 | Faculty of Module-2 |
| 10 Nov 17 | Friday | 9.30 Hrs to 17.00 Hrs | *Online Exam Module-2 / Global Navigation Satellite System and Geographical Information System | Edusat Team |

| Module-3 RS & GIS Applications<br>Module/ Course Coordinator: Dr. Arijit Roy | | | | |
|---|---|---|---|---|
| **Date** | **Day** | **Time** | **Topic** | **Speaker** |
| 13 Nov 17 | Monday | 1600-1730 hrs | Space Technology & its applications in governance | Dr. S. K Srivastav |
| 14 Nov 17 | Tuesday | 1600-1730 hrs | Remote Sensing and GIS Applications in Soil Resource Assessment | Dr. Suresh Kumar |
| 15 Nov 17 | Wednesday | 1600-1730 hrs | Remote Sensing Applications in Agriculture- Crop Inventory & Yield Forecasting | Dr. N.R. Patel |
| 16 Nov 17 | Thursday | 1600-1730 hrs | RS & GIS Applications in Forestry and Ecology | Dr. Sarnam Singh |
| 17 Nov 17 | Friday | 1600-1730 hrs | Engineering Geology with emphasis on landslide studies | Dr. Shovan Chattoraj |
| **18 Nov 17** | **Saturday** | | | |
| **19 Nov 17** | **Sunday** | | | |
| 20 Nov 17 | Monday | 1600-1730 hrs | Geology and Geomorphology | Dr. R.S. Chatterjee |
| 21 Nov 17 | Tuesday | 1600-1730 hrs | Space-enabled Products & Services for Disaster Management Indian Initiatives | Dr. P.K.C.Ray |
| 22 Nov 17 | Wednesday | 1600-1730 hrs | Geospatial Technology for climate change studies | Dr. Arijit Roy |
| 23 Nov 17 | Thursday | 1600-1730 hrs | RS & GIS Applications to Water Resources Management | Dr. S.P Aggarwal |
| 24 Nov 17 | Friday | 1600-1730 hrs | RS & GIS for Coastal Zone Management | Dr. D. Mitra |
| **25 Nov 17** | **Saturday** | | | |
| **26 Nov 17** | **Sunday** | | | |
| 27 Nov 17 | Monday | 1600-1730 hrs | Remote Sensing Application to Atmospheric & Marine Environment | Dr. A.K Mishra |
| 28 Nov 17 | Tuesday | 1600-1730 hrs | RS & GIS Application in Urban & Regional Planning | Dr. Pramod Kumar |
| 29 Nov 17 | Wednesday | 1600-1730 hrs | Geo-web Services and mobile GIS in governance | Dr. Harish Karnatak |
| 30 Nov 17 | Thursday | 1600-1730 hrs | Panel Discussion Module-3 | Faculty of Module-3 |
| 04 Dec 17 | Monday | 9.30 Hrs to 17.00 Hrs | Online Examination Module-3 -RS & GIS Applications | Edusat Team |
| 08 Dec 17 | Friday | 9.30 Hrs to 17.00 Hrs | *Online Examination of Basic of RS, GIS & GNSS – All module Complete Course | Edusat Team |

**There will be one exam for each Course in which you have applied .**

## 37. Overview of RS & GIS Applications for Natural Resource Management (IIRS)

| Module 1: Remote Sensing & Digital Image Analysis<br>Module/ Course Coordinator: Ms. Minakshi Kumar | | | | |
|---|---|---|---|---|
| **Date** | **Day** | **Time** | **Topic** | **Speaker** |
| 21 Aug 17 | Monday | 1600-1730 hrs | Course Inauguration and Introductory Lecture | Dr. A. Senthil Kumar |
| 22 Aug 17 | Tuesday | 1600-1730 hrs | Basic Principles of Remote Sensing | Mrs. Mamu Mehta |
| 23 Aug 17 | Wednesday | 1600-1730 hrs | Earth Observation Sensors and Platforms | Mr. Vinay Kumar |
| 24 Aug 17 | Thursday | 1600-1730 hrs | Thermal Remote Sensing | Dr. Yogesh Kant |
| **25 Aug 17** | **Ganesh Chaturthi** | | | |
| **26 Aug 17** | **Saturday** | | | |
| **27 Aug 17** | **Sunday** | | | |
| 28 Aug 17 | Monday | 1600-1730 hrs | Spectral Signatures of Different Land cover Features and Visual Image interpretation | Dr. Hina Pande |
| 29 Aug 17 | Tuesday | Offline (Morning Session) | RS and Image Interpretation Practical | By University Coordinator |
| **30 Aug 17** | **Wednesday** | **BREAK** | | |
| 31 Aug 17 | Thursday | 1600-1730 hrs | Digital Image Processing: Basic Concepts Rectification and Registration | Mrs. Minakshi Kumar |
| 01 Sep 17 | Friday | 1600-1730 hrs | Image Enhancement techniques | Dr. Poonam S. Tiwari |
| | | | | |
| **02 Sep 17** | **Saturday** | | | |
| **03 Sep 17** | **Sunday** | | | |
| **04 Sep 17** | **Monday** | **BREAK-ONAM** | | |
| 05 Sep 17 | Tuesday | 1600-1730 hrs | Image Classification Techniques and Accuracy Assessment | Dr. Poonam S. Tiwari |
| 06 Sep 17 | Wednesday | 1600-1730 hrs | Microwave Remote Sensing | Mr. Shashi Kumar |
| 07 Sep 17 | Thursday | 1600-1730 hrs | Hyperspectral Remote Sensing | Mrs. Shefali Agarwal |
| 08 Sep 17 | Friday | Offline - as per computer lab availability Morning Session | Image Processing Hands-on and Practical Assignment | By University Coordinator |
| 09 Sep 17 | Saturday | | | |
| 10 Sep 17 | Sunday | | | |
| 11 Sep 17 | Monday | 1600-1730 hrs | Demonstration: Image Processing | Mrs. Minakshi Kumar |
| 12 Sep 17 | Tuesday | Offline - as per computer lab availability | Practical Assignment submission by Participants to respective coordinators and evaluation to be done by respective coordinators | University coordinator |
| 13 Sep 17 | Wednesday | 1600-1730 hrs | Panel Discussion: Module-1 | Faculty of Module-1 |
| 14 Sep 17 | | | **BREAK For Examination** | |
| 15 Sep 17 | Friday | 9:30 Hrs to 17:00 Hrs | *Online Examination of Module-1 | Edusat Team |

| Module- 2 Global Navigation Satellite System and Geographical Information System: Module/ Course Coordinator: Shri Ashutosh Bhardwaj & Shri Prasun Kumar Gupta | | | | |
|---|---|---|---|---|
| 25 Sep 17 | Monday | 1600-1730 hrs | Introduction to GPS and GNSS | Er. Ashutosh Bhardwaj |
| 26 Sep 17 | Tuesday | 1600-1730 hrs | GPS receivers, processing methods, errors and accuracy | Er. Ashutosh Bhardwaj |
| 27 Sep 17 | Wednesday | 1600-1730 hrs | Satellites based Augmentation systems & GPS Aided and GEO Augmented Navigation (GAGAN) | Er. Ashutosh Bhardwaj |
| 28 Sep 17 | Thursday | 1600-1730 hrs | GPS signal characteristics, Data formats (broadcast, precise ephemeris) | Shri S. Raghavendra |
| **29 Sep 17** | | | **BREAK** | |
| 30 Sep 17 | **Dussehra -Saturday** | | | |
| 01 Oct 17 | **Sunday** | | | |
| **02 Oct 17** | **Monday** | | **Gandhi Jayanthi** | |
| **Date** | **Day** | **Time** | **Topic** | **Speaker** |
| 03 Oct 17 | Tuesday | 1600-1730 hrs | Indian Regional Navigation Satellite System (IRNSS) | Er. Ashutosh Bhardwaj & Shri Kamal Pandey |
| 04Oct 17 | Wednesday | 1600-1730 hrs | DGPS demonstration (Pre-recorded followed by live query session) | Shri S. Raghavendra |
| 05 Oct 17 | Thursday | 1600-1730 hrs | Mobile Mapping | Dr. Harish Chandra Karnatak |
| 06 Oct 17 | Friday | | **BREAK** | |
| **07 Oct 17** | **Saturday** | | | |
| **08 Oct 17** | **Sunday** | | | |
| **Geographical Information System Module/ Course Coordinator: Shri Prasun Kumar Gupta** | | | | |
| 09 Oct 17 | Monday | 1600-1730 hrs | Introduction to GIS | Dr. Sameer Saran |
| 10 Oct 17 | Tuesday | 1600-1730 hrs | Geographic Phenomena, Concepts and examples | Shri P K Gupta |
| 11 Oct 17 | Wednesday | 1600-1730 hrs | Data Inputting and Editing in GIS | Shri Shiva Reddy |
| 12 Oct 17 | Thursday | 1600-1730 hrs | GIS Data Models (Spatial and Non spatial) | Shri Ashutosh Kumar Jha |
| 13 Oct 17 | Friday | 1600-1730 hrs | Map Projection Concepts & Use in RS & GIS | Dr. Ashutosh Srivastav |
| 14 Oct 17 | Saturday | | | |
| 15 Oct 17 | Sunday | | | |
| 16 Oct 17 | Monday | 1600-1730 hrs | Spatial Analysis- Introductory Concepts and Overview | Shri Prabhhar Alok Verma |
| 17 Oct 17 | Tuesday | 1600-1730 hrs | Spatial Analysis- Functionality and Tools | Shri Kapil Oberai |
| **18 Oct 17** | **BREAK** | | | |
| **19 Oct 17** | **Diwali** | | | |
| **20 Oct 17** | **BREAK** | | | |
| **21 Oct 17** | **Saturday** | | | |
| **22 Oct 17** | **Sunday** | | | |
| 23 Oct 17 | Monday | | **BREAK** | |
| 24 Oct 17 | Tuesday | | **BREAK** | |
| 25 Oct 17 | Wednesday | | **BREAK** | |
| 26 Oct 17 | Thursday | 1600-1730 hrs | Demo of QGIS Software – Session 01 | Recorded Lecture Through FTP will be played by University coordinator |
| 27 Oct 17 | Friday | 1600-1730 hrs | Demo of QGIS Software – Session 02 (Data Creation/Vector Generation) | Recorded Lecture Through FTP will be played by University coordinator |
| **28 Oct 17** | **Saturday** | | | |
| **29 Oct 17** | **Sunday** | | | |

| | | | | |
|---|---|---|---|---|
| 30 Oct 17 | Monday | 1500-1545hrs | Interactive Session of Demo of QGIS Software – Session 01 & Session 02 | Shri P K Gupta |
| | | 1600-1730 hrs | Open Source S/w Technology & Tools | Shri P K Gupta |
| 31 Oct 17 | Tuesday | 1600-1730 hrs | Data Quality &Policies OGC, NSDI & GSDI initiatives. Discussion on Internet resources | Dr. Harish Karnatak |
| 01 Nov 17 | Wednesday | 1600-1730 hrs | Spatial Data Management using RDBMS-Demo on PostGRE SQL + Post GIS | Shri Kapil Oberai |
| **02 Nov 17** | Thursday | 1600-1730 hrs | 3D GIS and Application including Trivim | Shri Shiva Reddy |
| 03 Nov 17 | Friday | 1600-1730 hrs | Geo-Web Services Technical Concepts and Applications | Dr. Harish Karnatak |
| **04 Nov 17** | **Saturday – Guru Nanak Birthday** | | | |
| **05 Nov 17** | **Sunday** | | | |
| 06 Nov 17 | Monday | 1600-1730 hrs | Uncertainty in GIS and Error Propagation | Shri Hari Shankar |
| **07 Nov 17** | Tuesday | 1600-1730 hrs | Customization in GIS | Shri Kamal Pandey |
| **08 Nov 17** | Wednesday | 1600-1730 hrs | Recent Trends in Geoinformatics | Dr. Sameer Saran |
| 09 Nov 17 | Thursday | 1600-1730 hrs | Panel Discussion of Module 2 | Faculty of Module-2 |
| 10 Nov 17 | Friday | 9.30 Hrs to 17.00 Hrs | *Online Exam Module-2 / Global Navigation Satellite System and Geographical Information System | Edusat Team |

| Module-3 RS & GIS Applications<br>Module/ Course Coordinator: Dr. Arijit Roy | | | | |
|---|---|---|---|---|
| **Date** | **Day** | **Time** | **Topic** | **Speaker** |
| 13 Nov 17 | Monday | 1600-1730 hrs | Space Technology & its applications in governance | Dr. S. K Srivastav |
| 14 Nov 17 | Tuesday | 1600-1730 hrs | Remote Sensing and GIS Applications in Soil Resource Assessment | Dr. Suresh Kumar |
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| 17 Nov 17 | Friday | 1600-1730 hrs | Engineering Geology with emphasis on landslide studies | Dr. Shovan Chattoraj |
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| 24 Nov 17 | Friday | 1600-1730 hrs | RS & GIS for Coastal Zone Management | Dr. D. Mitra |
| **25 Nov 17** | **Saturday** | | | |
| **26 Nov 17** | **Sunday** | | | |
| 27 Nov 17 | Monday | 1600-1730 hrs | Remote Sensing Application to Atmospheric & Marine Environment | Dr. A.K Mishra |
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| 30 Nov 17 | Thursday | 1600-1730 hrs | Panel Discussion Module-3 | Faculty of Module-3 |
| 04 Dec 17 | Monday | 9.30 Hrs to 17.00 Hrs | Online Examination Module-3 -RS & GIS Applications | Edusat Team |
| 08 Dec 17 | Friday | 9.30 Hrs to 17.00 Hrs | *Online Examination of Basic of RS, GIS & GNSS – All module Complete Course | Edusat Team |

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