



# Rani Laxmibai Mahavidyalaya Parola

Dist. Jalgaon 425111 Tel: (02597) 292666

Web : [www.ricollegeparola.org](http://www.ricollegeparola.org)  
Email : [principalrlcparola@gmail.com](mailto:principalrlcparola@gmail.com)

Outward No.

Date : / /20

## 4. Curriculum



Sahajivan Shikshan Prasarak Mandal's  
**Rani Laxmibai Mahavidyalaya, Parola**  
Department of Chemistry  
**Certificate Course in Soil and Water Analysis**

**Syllabus**

**Paper I (Theory)**

**Marks :20**

**Unit –I Study of Water (10)**

- Hydrosphere- Water resources.
- Properties of water- color, odor, turbidity, total salt content, total suspended water.
- Water pollution- Definition of water pollution, types of water pollutants ,sources of water pollutants, trace element in water, water quality parameters and standards
- Purification of water- Treatment of domestic and industrial water.

**Unit –II Study of Soil (10)**

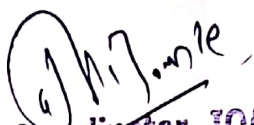
- The structure of earth, Elemental composition of earth crust, Definition of soil.
- Nature and classification of soil, important soil forming minerals, soil as eco system. soil fertility and productivity
- Properties of soil – Colour, temperature, pH, electrical conductance (EC), waterholding capacity, organic carbon, soil salinity, soil density.
- Soil erosion- Definition, Control of erosion, Soil conservation practices, Soil pollutioncauses and remedies.

**Paper II ( practical /work experience/ field work ) Marks :80**

- Collection of water samples (Field work)
- Determination of total hardness of water
- Determination of alkalinity of water
- Determination of pH of water
- Determination of conductivity of water
- Collection of soil samples from fields and study of soil sampling tools. (Field work)
- Soil sample preparation
- Determination of maximum water holding capacity of soil
- Determination of bulk density of soil
- Determination of pH of soil
- Determination of conductivity of soil

**References –**

- Laboratory Manual of Water and Wastewater Analysis, D.R. Khanna, R. Bhutiani, Daya Publishing House, Delhi, 2008
- Chemical and Biological Methods for Water Pollution Studies, R.K. Trivedy, P.K.Goel, Oriental Printing Press, Aligarh, 1986
- Practical Methods in Ecology and Environmental Science, R.K.Trivedy, P.K.Goel, C.L.Trishal, Environmental Publications,Karad (India) 1987
- Analytical Chemistry-Alka Gupta (PragatiPrakashan)
- Soil chemicals Analysis - P.R. Hesse
- Soil testing manual by department of agriculture and cooperation, India

  
**Coordinator, IQAC**  
Rani Laxmibai Mahavidyalaya  
Parola, Dist. Jalgaon

  
**PRINCIPAL**  
Rani Laxmibai Mahavidyalaya  
Parola, Dist. Jalgaon



Sahajivan Shikshan Prasarak Mandal's  
**Rani Laxmibai Mahavidyalaya, Parola**  
Department of Chemistry

**Certificate Course in High Performance Liquid Chromatography (HPLC)**

**Syllabus**

**Hands on HPLC+GC+UV (Experience Beyond on Books)**

**Course Work**

- Hand on HPLC+ GC + UV
- Development of analytical methods on HPLC,GC,UV » Routine Quality Control work
- Calibration of Instruments.
- Validation of Analytical methods by HPLC.
- Maintains and Care of Instruments.

**Certificate Course Details**

- Two Week hand on training on each instruments
- 2 HRs x 15 days
- Diploma in Analytical instruments Two Months
- Weekly Course also available


**Certificate Course of Analytical Instruments Best For**

- B.SC., M.SC.( Analytical Chem., Organic Chem., Life Sciences )
- M.Pharm ( All Branches ) and B.Pharm
- M.Tech ,B.Tech, ( all branches ) & Research Students

**Consultancy Services for**

- Chemical Analysis by HPLC, GC,UV,FT-IR.
- Guidance for Analytical Method Development



  
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## Theory Syllabus of Certificate Course A Certificate Course in **ChemDraw Sketching Training**

### What you'll learn

- Learn to use ChemDraw Professional Software!
- Learn the best drawing tool of choice for Chemists and Biologists!
- Create publication-ready and Scientifically intelligent drawings!
- Have control over your Chemical and Biological Drawings

### Course content

Unit 1. User Interface	03 L
<ul style="list-style-type: none"> <li>• Installing and Launching ChemDraw</li> <li>• Document and Page setup,</li> <li>• Document settings.</li> </ul>	
Unit 2. Basic Drawing: -	06 L
<ul style="list-style-type: none"> <li>• All kinds of bonds</li> <li>• Atoms, Captions and Chemical Analysis</li> <li>• Drawing Rings and Chains</li> <li>• Objects I</li> <li>• Objects II</li> <li>• Finishing up structures</li> </ul>	
Unit 3: BioDraw	04 L
<ul style="list-style-type: none"> <li>• Solution to exercise</li> <li>• BioDraw Templates</li> <li>• Membrane, Helix protein and others</li> <li>• DNA Molecules and Plasmid Maps</li> </ul>	
Unit 4: Advanced Drawing Techniques	04 L
<ul style="list-style-type: none"> <li>• Labels and Atom Numbering</li> <li>• Fragmentation and Structure Perspective</li> <li>• Drawing Reactions</li> <li>• Stoichiometry Grid</li> </ul>	
Unit 5: Additional Features	03 L
<ul style="list-style-type: none"> <li>• ChemDraw for Excel</li> <li>• ChemNMR</li> <li>• Exporting and Importing</li> </ul>	
<b>Course Practical</b>	<b>10 L</b>

*Course*  
Course

*Coordinator, IQAC*  
**Coordinator, IQAC**  
Rani Laxmibai Mahavidyalaya  
Parola, Dist. Jalgaon


*Acting Principal*  
**Acting Principal**  
Rani Laxmibai Mahavidyalaya,  
Parola, Tal. Parola Dist. Jalgaon



## Theory Syllabus of Certificate Course

### Nursery Training and Plant Propagation

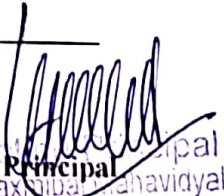
Unit 1. Introduction	01 L
<ul style="list-style-type: none"> <li>• Definition, Objectives, Scope and Importance,</li> <li>• Building up of Infrastructure for Nursery,</li> <li>• Planning and Seasonal Activities.</li> </ul>	
Unit 2. Cultivation / Propagation of Nursery Plants: *	05 L
A) By seeds / Sexual Propagation	
i) Selection of Seeds	
ii) Pre-germination Treatment	
a) Seed dormancy, Causes and Methods of Breaking Dormancy	
b) Applications of Germicide, Insecticide, Pesticides, Fungicides etc.	
c) Seed Storage: Seed Banks, Factors Affecting Seed Viability	
iii) Maintain the Semi-shade condition	
iv) Preparation of Soil and Manures	
• Preparation of Soil Bade.	
• Filling of Polyethene Bags.	
• Sowing of Seeds	
• Watering Methods	
• Planting: Direct Seedling and Transplant.	
B. Vegetative Propagation	05 L
i) Cutting, ii) Air-layering, iii) Grafting, iv) Budding	
• Selection,	
• Techniques of cutting,	
• Rooting medium,	
• Planting and hardening of plants in green house or glass house.	
• Harvesting, Packing, Storage and Marketing of Nursery stock.	
Unit 3: Cultivation Practices of Fruits and Vegetables	04 L
• Introduction,	
• Study of Cultivation of	
• Some Fruits i.e., Mango, Papaya and	
• Vegetables: Brinjal and Tomato w.r.t.,	
i) Sowing	ii) Transplanting of Seedling
iii) Varieties	iv) Manuring and Irrigation
v) Control Measures of Pest and Diseases	vi) Harvesting
vii) Storage and Marketing	



Course Co-ordinator



Head Department of Botany



Principal  
Rani Laxmibai Mahavidyalaya  
Parola, Tal. Parola Dist. Jalgaon





## Practical of Certificate Course

### “Nursery Training and Plant Propagation”

#### Practical: 1) Propagation of Nursery Plants:

##### A) By seeds / Sexual Propagation

##### i) Selection of Seeds

##### ii) Pre-germination Treatment

- a) Seed dormancy, Causes and Methods of Breaking Dormancy
- b) Applications of Germicide, Insecticide, Pesticides, Fungicides etc.
- c) Seed Storage: Seed Banks, Factors Affecting Seed Viability

#### Practical: - 2) iii) Maintain the Semi-shade condition

##### iv) Preparation of Soil and Manures

- Preparation of Soil Bade.
- Filling of Polyethene Bags.
- Sowing of Seeds
- Watering Methods
- Planting: Direct Seedling and Transplant

#### Practical: - 3 & 4) B. Vegetative Propagation

##### i) Cutting, ii) Air-layering & iii) Grafting, iv) Budding

- Selection of propagules.
- Techniques of cutting,
- Rooting medium,
- Planting and hardening of plants in green house or glass house.

#### Practical: - 5 & 6) Cultivation Practices of Fruits and Vegetables

- Study of Cultivation of
- Some Fruits i.e., Mango and Papaya
- Vegetables: Brinjal and Tomato
  - i) Sowing    ii) Transplanting of Seedling
  - iii) Varieties    iv) Mannuaring and Irrigation
  - v) Control Measures of Pest and Diseases
  - vi) Harvesting    vii) Storage and Marketing

Course Co-ordinator

Head Department of Botany

Principal  
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## DEPARTMENT OF PHYSICS

### SYLLABUS OF CERTIFICATE COURSE ON SYNTHESIS OF NANOMATERIALS AND ITS APPLICATION AS A GAS SENSOR

- |  |      |
|--|------|
| Unit 1. Introduction to techniques of nanomaterials synthesis  | 04 L |
| <ul style="list-style-type: none"> <li>• Spray Pyrolysis Technique,</li> <li>• Chemical Vapor Deposition Technique</li> <li>• Microwave Assisted Centrifuge Technique</li> <li>• Pulsed LASER Technique</li> <li>• Hydrolysis by Autoclave Technique</li> <li>• Ultrasonicated Microwave Assisted Centrifuge Technique (Pin Type)</li> <li>• Disc type Ultrasonicated Microwave assisted Centrifuge Technique</li> </ul>   |      |
| Unit 2. Materials Synthesis  | 08 L |
| <ul style="list-style-type: none"> <li>• Selection of Alcohol: Ethane Diol</li> <li>• Preparation of Aqueous – Alcohol Solution in the desired concentration (1: 1)</li> <li>• Preparation of Aqueous Solution of Materials</li> <li>• Addition of Ammonium Hydroxide into Materials</li> <li>• PPT Formation</li> <li>• PPT Washing</li> <li>• Ultrasonication</li> <li>• Microwave Irradiation</li> <li>• Centrifuge</li> <li>• Calcination at high temperature (1000°C, 2 hrs.)</li> <li>• Collection of Dry Powders</li> </ul> |      |
| Unit 3. Thick Film Fabrication   | 06 L |
| <ul style="list-style-type: none"> <li>• Preparation of Thixotropic Paste</li> <li>• Preparation of Alcoholic Solution</li> <li>• Printing of Materials on Glass Substrates</li> <li>• Firing of Thick Films</li> </ul>  |      |
| Unit 4. Measurement of Gas Sensing Performance   | 12 L |
| <ul style="list-style-type: none"> <li>• Preparation of Various Gases by Chemical Methods</li> <li>• Introduction to Gas Sensing System</li> <li>• Measurement of Electrical Performance of the Films</li> <li>• Measurement of Gas Sensing Performance of the Films</li> </ul>  |      |

*(Signature)*

*(Signature)*  
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## DEPARTMENT OF PHYSICS

### SYLLABUS OF CERTIFICATE COURSE ON SYNTHESIS OF NANOMATERIALS

- |  |      |
|--|------|
| Unit 1. Introduction to techniques of nanomaterials synthesis  | 08 L |
| <ul style="list-style-type: none"> <li>• Spray Pyrolysis Technique,</li> <li>• Chemical Vapor Deposition Technique</li> <li>• Microwave Assisted Centrifuge Technique</li> <li>• Pulsed LASER Technique</li> <li>• Hydrolysis by Autoclave Technique</li> <li>• Ultrasonicated Microwave Assisted Centrifuge Technique (Pin Type)</li> <li>• Disc type Ultrasonicated Microwave assisted Centrifuge Technique</li> </ul>   |      |
| Unit 2. Materials Synthesis  | 12 L |
| <ul style="list-style-type: none"> <li>• Selection of Alcohol: Ethane Diol</li> <li>• Preparation of Aqueous – Alcohol Solution in the desired concentration (1: 1)</li> <li>• Preparation of Aqueous Solution of Materials</li> <li>• Addition of Ammonium Hydroxide into Materials</li> <li>• PPT Formation</li> <li>• PPT Washing</li> <li>• Ultrasonication</li> <li>• Microwave Irradiation</li> <li>• Centrifuge</li> <li>• Calcination at high temperature (1000°C, 2 hrs.)</li> <li>• Collection of Dry Powders</li> </ul> |      |
| Unit 3. Thick Film Fabrication   | 10 L |
| <ul style="list-style-type: none"> <li>• Preparation of Thixotropic Paste</li> <li>• Preparation of Alcoholic Solution</li> <li>• Printing of Materials on Glass Substrates</li> <li>• Firing of Thick Films</li> </ul>  |      |

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 Parola, Tal. Parola Dist. Jalgaon



Department of Marathi



Sr. No.	Particular	Description
1	Title of Course	Communication and Writing Skill in Marathi
2	Course Level	Certificate
3	Implementation Year	2019-2020
4	Syllabus of Course	Components 1. Essay writing 2. Type of Essay 3. Interview Technique 4. Dialogue (Oral and Writing) 5. Verbal Communication 6. Letter Writing & Types 7. Barriers of Communication
5	Faculty of the course	Arts and Science
	Eligibility of admission	12 <sup>th</sup> Std. pass candidate
7	Duration of the course	30 Hrs.
8	Intake capacity	30 students
9	Pattern of the course	I. Internal 50 Marks based on oral Examination. II. External 50 Marks based on Written Examination
10	Name of the teaching	Mr. S.D.Patil Asst. Professor Dr.S.B.Sawant Asst.Professor
11	Others Facilities	Library, Internet and Wi-Fi
12	Recommended Books	1. Marathi Vyakaran 2. Skill Of Essay writing 3. Upyojit Marathi 4. Vyavharik Marathi

Time Table

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2.00 pm To 2.45 pm	Communication Skill	Communication Skill	Communication Skill	Communication Skill	Communication Skill	Communication Skill
3.00 pm To 3.45 pm	Writing Skill	Writing Skill	Writing Skill	Writing Skill	Writing Skill	Writing Skill

*[Signature]*  
Head

Dept. of Marathi  
Rani Laxmibai Mahavidyalaya  
Parola, Tal. Parola Dist. Jalgaon

Department of English



Sr. No.	Particular	Description
1	Title of Course	Communication and writing skill in English
2	Course Level	Certificate
3	Implementation Year	2019-2020
4	Syllabus of Course	<b>Components</b> 1. Parts of speech 2. Tense 3. Interview Technique 4. Dialogue (Oral and Writing) 5. Verbal Communication 6. Ecoding and Decoding Message 7. Barriers of Communication
5	Faculty of the course	Arts and Science
6	Eligibility of admission	12 <sup>th</sup> Std. pass candidate
7	Duration of the course	30 Hrs.
8	Intake capacity	25 students
9	Pattern of the course	I. Internal 50 Marks based on oral Examination. II. External 50 Marks based on Written Examination
10	Name of the teaching	Mr. Rajendra B. Patil Asst. Professor
11	Others Facilities	Library, Internet and Wi-Fi
12	Recommended Books	1. Communication skill 2. Training materials for trainers. 3. How to talk 4. How to develop self confidence

Time Table

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2.00 pm To 2.45 pm	Communi- cation Skill	Communi- cation Skill	Communi- cation Skill	Communi- cation Skill	Communi- cation Skill	Communi- cation Skill
3.00 pm To 3.45 pm	Communi- cation Skill	Communi- cation Skill	Communi- cation Skill	Communi- cation Skill	Communi- cation Skill	Communi- cation Skill

Head  
Dept. of English  
Rani Laxmibai Mahavidyalaya  
Parola, Tal. Parola, Dist.

**S. S. P. M's,  
Rani Laxmibai Mahavidyalaya, Parola**

**Certificate Course on Basics of Computer**



➤ **Objectives of the Course:**

- To give basic information about the computer system.
- To give knowledge about computer hardware and computer software.
- To familiarize students with the use of MS Windows, Internet and E-mail.
- To familiarize students with the use of MS Office-MS Word, MS Excel & MS PowerPoint.

➤ **Course Overview:**

Computer Proficiency is an inevitable part of every sector. The course is aiming to equip all the aspirants to have basic skills as well as hands on experience on word processing, for creating excel spreadsheets, for building databases and preparing presentations, through the use of Microsoft Office Word, Excel, and PowerPoint programmes.

**SYLLABUS**

**Module I:**

**05 L**

Introduction to Computer Fundamentals, Windows OS, Internet and Email Computer, Classification of computers, Parts of a computer, Operating System, Internet, Modem, Web browsers, E-mail, Establishing your e-mail account.

**Module II:**

**08 L**

Introduction to Microsoft Word Basic components of a Word window, Preparing a word document, editing a prepared document, Adjusting the margin settings, Additional formatting options, Header and Footer options, Border and Shading of page, drawing options, Inserting images, Mail merge options, saving a document, creating a new document, Inserting audio and video files.

**Module III:**

**08 L**

Introduction to Microsoft Excel Enter data in excel workbook, Formatting toolbar, Shortcut to fill a series, Mathematical functions, editing a data sheet, Format cell, Rename a sheet, Save, Open a workbook, arrange data in ascending or descending order, Insert new cell column or row, insert picture or clipart in excel sheet.



#### Module IV:

07 L

Introduction to Microsoft Power Point, how to create a new slide, how to apply animation to slides, Fill background with effects, how to apply sound to slides, how to save a presentation, Opening an existing presentation, insert new slides with different layout, Editing a slide, Inserting picture to a slide, Inserting media files to PowerPoint slides

#### Practical's of Certificate Course

1. Study of different parts of Computer System.
2. Use and searching contents in different Web Browsers.
3. Creating & sending E-Mails.
4. Preparing a word document, editing a prepared document, Adjusting the margin.
5. Inserting images, Audio & Video files, Mail merge options etc.
6. Introduction to Microsoft Excel, data entry in excel workbook
7. Formatting toolbars, Shortcut to fill a series, use of Mathematical functions etc.
8. Data entry in Excel workbook, formatting cells, Arranging data in order.
9. Inserting New Rows, Column's into workbook providing security to workbook.
10. Introduction to Microsoft Power Point. Creation of new slides etc.
11. Applying animation to slides, Fill background with effects etc.
12. Inserting picture to a slide, inserting media files to PowerPoint slides, Creating Presentations with effects.



Course  
Co-ordinator



Head  
Dept. of Computer Science



Vice PRINCIPAL  
Rani Laxmibai Mahavidyalaya  
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Outward No.

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## Yoga & Pranayama Course Yogic Syllabus



### ❖ Objectives of Yogic Syllabus

1. To Introduce to the students about Yam, Niyam, Asan, Pranayama, Dhyana and samadhi.
2. To make students healthy physically and mentally.
3. To increase grasping power and concentration to the students.
4. To develop physical, mental and intellectual ability of the students.

### ❖ Unit details

- 1) To introduce yam, Niyam of yoga
  - Yam- Satya, Ahinsa, Astay, Aparigrah, Bramhacharya,
  - Niyam- Sauch, Santosh, Tap, Swadhyay, Ishwarpranidhan
- 2) Prayer- I) Beginning Prayer -a)guruvandana  
b) Omkar Pronunciation  
II) Ending Prayer- Om sarveapi sukhina santu
- 3) Suryanamaskar- I) Slow  
II) Fast  
III) With Breathing  
IV) Shavashan
- 4) Asan-I) Doctrine of Asan
  - II) Types of Asan-
    - A) Sleeping position Asan's
      - 1)Navakasan 2) viparitkarani 3) Pawanmuktasan
      - 4) Sarvangasan 5) Halasan 6) Dvipad Uttanasan.
    - B) Viparit Shayan Position Asan's-
      - 1) Bhujangasan 2) Shalabhasan 3) Makarasan
      - 4) Dhanurasan 5) Naukasan.
    - C) Bhaithak Position Asan's-
      - 1) Sashankasan 2) Padmasan 3) Vajrasan
      - 4) Pachhimtanasan 5) Ardhamatsyendrasan.


D) Danda Position Asan's-

- 1) Ekpad Hasthasan
- 2) Virasan
- 3) Vrukshasan
- 4) Trikonasan
- 5) Janubhalasan
- 6) Chakrasan

- 5) Mudra- 1) Sinhamudra  
2) Marjar Mudra  
3) Buddha Mudra

- 6) Pranayama- 1) Kapalbhathi  
2) Dirghshwasan(Deepbreathing)  
3) Vilom-Anulom  
4) Bhastrika

- 7) Dhyana (Meditation)- 1) Shravan dhyana  
2) Shwasan dhyana(Anapan)  
3) Sharir dhyana (Vipashana)

  
Yoga Teacher

  
Principal  
Acting Principal  
Rani Laxmibai Mahavidyalaya,  
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## Theory Syllabus of Certificate Course “Honey Bee Keeping”

### Aims:

- Training of Honey Bee keeping.
- In which introduction bee's species,
- Handling of bees.
- Beekeeping equipment's,
- Diseases, control and preventive measures,
- Bee products,
- Methods of extraction of honey,
- Their economic importance of bee products,
- Marketing and socio agriculture importance to the students.

### Objective:

- To enhance Bee keeping and Handling skill and technique.
- To awareness socio, agriculture and environmental importance of bees
- To create self-employment and earning.
- To obtain the different important and valuable bee products.

### Unit 1. Biology of Bees: -

- i) History
- ii) Classification and Biology of Honey Bees
- iii) Social Organization of Bee Colony

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### Unit 2: Rearing of Bees

- a) Apiary (Artificial Bee Rearing)
- b) Bee Hives – Newton and Langstroth
- c) Bee Pasturage.
- d) Selection of Bee Species for Apiculture
- e) Bee Keeping Equipment's
- f) Method of Extraction of Honey (Indigenous and Modern)

12L

- Unit 3: Diseases and Enemies
- I) Bee Diseases
    - a) Viral disease
    - b) Fungal Diseases
    - c) bacterial Disease
    - d) Protozoan Diseases
  - II) Bee Enemies
    - a) Bee Parasites
    - b) Bee pest
  - III) Control and Preventive Measure
- 05L**

Unit 4: Bee Economy

- I) Product of Apiculture
  - a) Honey
  - b) Pollen
  - c) Propolis (bee-glue)
  - d) Bee wax
  - e) Bee venom
  - F) Royal jelly

**04L**

Unit 5: Entrepreneurship in Apiculture

- I) Bee keeping industry
  - a) Resent efforts
  - b) Modern methods in employing artificial bee Hives for cross pollinations in horticulture gardens

**05L**

  
Course  
Co-ordinator

  
Head Dept.

  
Acting Principal  
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