



## **SENGAMALA THAYAR EDUCATIONAL TRUST WOMEN'S COLLEGE (AUTONOMOUS)**

**(Affiliated to Bharathidasan University, Tiruchirappalli)  
(Accredited by NAAC) / (An ISO 9001:2015 Certified Institution)**

**SUNDARAKKOTTAL MANNARGUDI-614 016.  
THIRUVARUR (Dist.), TAMILNADU, INDIA.**

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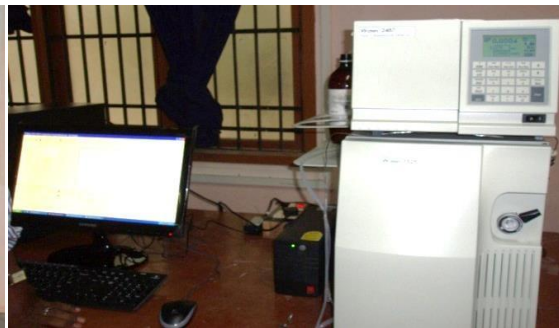
### **CENTRALIZED INSTRUMENTATION FACILITY**

The Central Instrumentation Facility, equipped with high value sophisticated instruments, has been created in order to cater to the needs of different departments and for maximum utilisation of instruments. The facilities are extensively used by Post Graduate Students, Doctoral and Research Scholars. Centralized Instrumentation Laboratory was established in the year 2006. Research activities are carried out by the research scholars, both M.Phil. and Ph.D. in the laboratory by utilizing the available instruments. Many ongoing research works are in process by the research scholars of the departments of Microbiology and Biochemistry. Biominin Laboratories utilize the instruments for soil testing and for all the other activities. The students of various departments were also given instrumentation training for three years to provide students with a broad technical training in all major scientific disciplines for supporting their study. Our main intention is to strengthen the candidates to know the scientific concepts. We want to provide hands on experience in a modern sophisticated laboratory setting which will develop the technical skills in current industries.





GAS CHROMATOGRAPHY



HPLC



AAS



UV-VIS SPECTROPHOTOMETER

## Vision

To help students and research scholars to develop an analytical mind and good problem solving skills needed to solve the diversity of problems encountered in their career as a professional analyst

## Mission

To provide students with a broad based training in all major scientific disciplines for supporting their study in analytical science which is multi disciplinary in nature

## Objectives

To pursue a competitive research in order to discover and fulfill the global needs in Life Sciences.

To provide students with a solid knowledge base and skills in the variety of techniques used to solve a diversity of problems in analytical and testing science

To train the students in operating and maintaining with care and caution for increasing the long life of the instruments

## LOCATION OF CIF

| Lab details                                | Location *                 | Size (l x b) | Area (Sq. ft.) |
|--|----------------------------|--------------|----------------|
| Centralized Instrumentation Facility (CIF) | V.S. Block<br>Ground Floor | 68 x 27      | 1,836          |
|  | I Floor                    | 68 x 27      | 1,836          |
|  | Total                      |              | 3,672          |

## AREA OF RESEARCH

The students of the departments of Microbiology, Biochemistry and Biotechnology carried out a number of research works in the field of Microbiology, Biochemistry, Biotechnology, Soil Microbiology, Pharmacognosy, Biocontrol, Food Microbiology,

Biodiversity, Industrial Microbiology, Medical Microbiology, Animal Biotechnology, Agriculture Microbiology, Environmental Science, Plant Biotechnology, Zoology, Herbal Technology, Soil chemistry, Nanotechnology, Nutritional Biochemistry etc.

Sufficient sophisticated instrumentation laboratory provides all the facilities to do the research in any scientific area.

### **MAJOR INSTRUMENTS**

HPLC, Gas Chromatography, BX-51 Microscope, Phase Contrast Microscope, Inverted Tissue Culture Microscope, Gel Documentation System, Thermal Cycler, Atomic Absorption Spectrophotometer, UV-Vis Spectrophotometer, Soxhlet Extraction Unit, Semi Auto Analyser, Bioreactor and Flame Photometer.

### **CERTIFICATE COURSES**

The fruitful results of the Bioinstrumentation training conducted has given us the spirit to start the certificate course on Bioinstrumentation and Microscopic Techniques to arrange hands-on training to the students of various disciplines including Microbiology, Chemistry, Biochemistry, Nutrition and Dietetics and Physics.

### **UNIQUE FACILITY**

- Vermicompost Yard
- Mushroom Cultivation Shed
- Soil Testing Laboratory
- Bio-fermentation Facility
- Tissue Culture Laboratory
- Animal House Facility
- Herbarium Unit with 191 Follicolous Fungal specimens

### **CONSULTANCY SERVICES**

- Micronutrient Preparation
- Mushroom Production
- Vermicarnival
- Soil Testing

## MEMORANDUM OF UNDERSTANDING

For providing the institution-industry interface several MoU's has been signed with different industries and many institutions.

## FUTURE PLAN

This facility is going to be extended to External Institutions

## INSTRUMENTS

| S.NO | INSTRUMENT NAME             | PURCHASE DATE | NUMBE R | MAKE        |
|------|-----------------------------|---------------|---------|-------------|
| 1    | Physical balance            | 31.05.1995    | 1       | K-ROY       |
| 2    | Digital pH meter            | 31.05.1995    | 1       | EQUIPTRONIC |
| 3    | Tempo hot air oven          | 31.05.1995    | 1       | TEMPO       |
| 4    | Clinical centrifuge         | 31.05.1995    | 1       | REMI        |
| 5    | High speed centrifuge       | 31.05.1995    | 1       | REMI        |
| 6    | Heating mantle              | 31.05.1995    | 1       | GUNA        |
| 7    | Magnetic stirrer            | 31.05.1995    | 1       | REMI        |
| 8    | Compound Microscope         | 31.05.1995    | 2       | ERMA        |
| 9    | Research Microscope         | 31.05.1995    | 1       | DOLLAR      |
| 10   | Tempo Distilled water Plant | 31.05.1995    | 1       | TEMPO       |
| 11   | Compound Microscope         | 31.05.1995    | 15      | DOLLAR      |
| 12   | Autoclave                   | 15.07.1995    | 1       | MATRI       |
| 13   | Research Microscope         | 26.07.1995    | 4       | DOLLAR      |
| 14   | Laminar Flow Chamber        | 14.08.1995    | 1       | MATRI       |
| 15   | Incubator                   | 18.08.1995    | 1       | TEMPO       |
| 16   | Vortex Mixer                | 16.10.1995    | 1       | WESWOX      |
| 17   | Student Microscope          | -             | 8       | LINKER      |
| 18   | Mono Pan Balance            | 11.03.1996    | 1       | -           |
| 19   | Water bath with single hole | 13.07.1996    | 2       | -           |
| 20   | Hot Plate                   | 13.07.1996    | 1       | SHITAL      |
| 21   | Bright Field Microscope     | 13.07.1996    | 2       | DOLLAR      |

|    |   |            |   |           |
|----|---|------------|---|-----------|
| 22 | Water bath six hole                             | 15.07.1996 | 3 | GUNA      |
| 23 | Hot Air Oven-AluminaChamber                     | 13.07.1996 | 1 | -         |
| 24 | Tempo Incubator                                 | 13.07.1996 | 1 | TEMPO     |
| 25 | Triple Beam Balance                             | 23.07.1996 | 3 | DOLLAR    |
| 26 | Spectronic-20 & Spectrophotometer               | 29.07.1996 | 1 | MILTEN    |
| 27 | Photoelectric colorimeter                       | 29.07.1996 | 1 | ERMA      |
| 28 | Phase Contrast Microscope                       | 13.08.1996 | 1 | WESWOX    |
| 29 | Allwin Refrigerator                             | 28.08.1996 | 1 | ALLWIN    |
| 30 | Distillation Unit                               | 19.01.1998 | 5 | BOROSIL   |
| 31 | UV-VIS Spectrophotometer                        | 26.06.1998 | 1 | SYSTRONIC |
| 32 | Hot Air oven                                    | 30.06.1998 | 1 | KEMI      |
| 33 | BOD Incubator with cooler                       | 30.06.1998 | 1 | KEMI      |
| 34 | Laboratory Stirrer Model No.<br>KLS.104 2B      | 20.07.1998 | 1 | KEMI      |
| 35 | Serological Water bath                          | 03.03.1999 | 2 | GUNA      |
| 36 | Mini DNA Gel Set                                | 14.06.1999 | 1 | WESWOX    |
| 37 | Immunoelectrophoresis apparatus                 | 14.06.1999 | 1 | -         |
| 38 | Immunoelectrophoresis power supply              | 14.06.1999 | 1 | IMMUNO    |
| 39 | OHP slide projector                             | 17.06.99   | 1 | -         |
| 40 | Gas Chromatography                              | 26.12.1999 | 1 | CHEMITO   |
| 41 | Roy electronic top pan balance                  | 1.09.2000  | 1 | ROY       |
| 42 | Vertical slab gel system<br>electrophoresis     | 22.01.2003 | 1 | -         |
| 43 | Digital colony counter                          | 22.01.2003 | 1 | -         |
| 44 | Deep Freezer 170 model                          | 03.02.2003 | 1 | REMI      |
| 45 | UV transilluminator                             | 30.12.2002 | 1 | GENI      |
| 46 | Hand Centrifuge                                 | 08.07.2003 | 2 | -         |
| 47 | Laminar Air flow chamber Lamp<br>Vertical model | 14.08.2004 | 1 | -         |
| 48 | Thin Layer Chromatography                       | 14.08.2004 | 1 | -         |



|    |  |            |    |            |
|----|--|------------|----|------------|
| 49 | Membrane filter  | 14.08.2004 | 1  | -          |
| 50 | Colony Counter Digital                                   | 23.09.2004 | 1  | -          |
| 51 | Colorimetry Digital Filter                               | 07.09.2004 | 1  | -          |
| 52 | Fluorescence Microscope                                  | 09.02.2005 | 1  | -          |
| 53 | Double Distillation Unit                                 | 06.08.2005 | 1  | BOROSIL    |
| 54 | Binocular Microscope                                     | 06.08.2005 | 1  | ALMIDO     |
| 55 | Microscope Olympus Trinocular<br>Fluorescence Microscope | 23.10.2006 |    | OLYMPUS    |
| 56 | Air Chamber system                                       | 03.01.2005 |    | MADRAS     |
| 57 | Chemical Balance   | 03.06.1995 | 10 | KEROY      |
| 58 | Electric Bunsen Burner                                   | 03.06.1995 | 1  | -          |
| 59 | Physical Balance   | 03.06.1995 | 1  | KEROY      |
| 60 | Photo electric Colorimeter                               | 03.06.1995 | 4  | CORONATION |
| 61 | Single Pananalytical Balance                             | 03.06.1995 | 1  | DHONA      |
| 62 | PH Meter   | 03.06.1995 | 1  | INDIAN     |
| 63 | Heating Mantle with Regulator                            | 03.06.1995 | 1  | SAKTHI     |
| 64 | Hot Air Oven   | 03.06.1995 | 1  | -          |
| 65 | Chromatography Cabinet                                   | 03.06.1995 | 1  | -          |
| 66 | Digital Flame Photometer                                 | 03.06.1995 | 1  | CORONATION |
| 67 | Dessicator with Cover                                    | 03.06.1995 | 1  | -          |
| 68 | Electric Hot Plate With Regulator                        | 03.06.1995 | 2  | -          |
| 69 | Laboratory Medical Microscope                            | 15.07.1995 | 4  | WESWOX     |
| 70 | Chemical Balance   | 15.07.1995 | 1  | KEROY      |
| 71 | Electric Bunsen Burner                                   | 15.07.1995 | 1  | REMI       |
| 72 | Physical Balance   | 15.07.1995 | 1  | REMI       |
| 73 | Photo electric Colorimeter                               | 15.07.1995 | 1  | -          |
| 74 | Single Distillation Unit                                 | 15.07.1995 | 1  | -          |
| 75 | Digital PH Meter   | 15.07.1995 | 1  | -          |
| 76 | Microkjedhal Digestion Unit                              | 26.09.1995 | 3  | -          |
| 77 | UV Visible Digital                                       | 06.12.1995 | 1  | -          |

|     |  |            |   |            |
|-----|--|------------|---|------------|
|     | Spectrophotometer                      |            |   |            |
| 78  | TLC Kit                                | 06.12.1995 | 1 | -          |
| 79  | Cooling Microfuge                      | 19.07.1997 | 1 | CSSCO      |
| 80  | Head with Slideplate                   | 19.07.1997 | 2 | CSSCO      |
| 81  | Nephelometer                           | 05.08.1997 | 1 | ERMA       |
| 82  | UV –Transilluminator                   | 19.09.1997 | 1 | ERMA       |
| 83  | Electronic Balance                     | 30.06.1998 | 1 | CSSCO      |
| 84  | Digital PH Meter                       | 03.07.1998 | 1 | CSSCO      |
| 85  | Digital Colorimeter                    | 22.07.1998 | 1 | -          |
| 86  | Electronic top pan balance             | 22.07.1998 | 1 | CSSCO      |
| 87  | Triple Beam Balance                    | 30.07.1998 | 1 | SUPERFIT   |
| 88  | Electrophoresis with Platinum Platform | 11.09.1998 | 1 | REMI       |
| 89  | Deep Freezer                           | 11.09.1998 | 1 | REMI       |
| 90  | Advanced Student Microscope            | 07.02.2000 | 1 | SYSTRONICS |
| 91  | ECG Machine                            | 16.02.2000 | 1 | -          |
| 92  | Tissue Homogenizer                     | 01.09.2000 | 1 | -          |
| 93  | Laminar Air Flow Chamber               | 01.09.2000 | 2 | -          |
| 94  | Digital Photoelectric Colorimeter      | 01.09.2000 | 2 | -          |
| 95  | Centrifuge machine                     | 30.09.2000 | 1 | -          |
| 96  | APS Two BED Demineraliser              | 01.10.2000 | 1 | BESTO      |
| 97  | Muffle Furnace                         | 15.11.2000 | 1 | -          |
| 98  | Flame Photometer                       | 22.03.2002 | 1 | -          |
| 99  | Cylindrical Water Bath                 | 28.09.2002 | 2 | -          |
| 100 | Paper Electrophoresis                  | 13.02.2003 | 1 | -          |
| 101 | Kitchen Balance                        | 22.01.2003 | 1 | -          |
| 102 | Colorimeter                            | 15.03.2004 | 2 | DEEPCISION |
| 103 | Autoanalyser                           | 30.08.2004 | 1 | REMI       |
| 104 | Digital Colorimeter                    | 12.02.2005 | 1 | AQUOIN     |
| 105 | Digital Colorimeter                    | 23.02.2005 | 1 | GUNA       |



|     |                                     |            |   |                    |
|-----|-------------------------------------|------------|---|--------------------|
| 106 | Atomic Absorption Spectrophotometer | 19.09.2006 | 1 | ELICO              |
| 107 | Laminar air flow chamber            | 26.10.2006 | 1 | SCIENTEK           |
| 108 | BOD Incubator                       | 26.10.2006 | 1 | -                  |
| 109 | Rotary shaker                       | 11.10.2006 | 1 | -                  |
| 110 | Hot air oven                        | 26.10.2006 | 1 | -                  |
| 111 | pH meter                            | 11.10.2006 | 1 | DIGISON            |
| 112 | Flame Photometer                    | 19.09.2006 | 1 | ELICO              |
| 113 | Spectrophotometer                   | 20.11.2006 | 1 | -                  |
| 114 | Fermentor                           | 31.10.2006 | 1 | -                  |
| 115 | Autoclave                           | 26.10.2006 | 1 | OSWORLD            |
| 116 | Hot Plate with stirrer              | 11.10.2006 | 1 | -                  |
| 117 | Colony counter                      | 20.10.2006 | 1 | -                  |
| 118 | Microscope                          | 11.10.2006 | 1 | -                  |
| 119 | Analytical Balance                  | 11.10.2006 | 1 | -                  |
| 120 | Electronic weighing balance         | 11.10.2006 | 1 | -                  |
| 121 | Platform weighing balance           | 11.10.2006 | 1 | -                  |
| 122 | Conductivity meter                  | 11.10.2006 | 1 | -                  |
| 123 | Deionizer Unit                      | 02.12.2006 | 1 | -                  |
| 124 | Automatic motorized sieve shaker    | 11.12.2006 | 1 | NEOLAB/REVOTE<br>K |
| 125 | Refrigerator with stabilizer        | 11.12.2006 | 1 | -                  |
| 126 | Peristaltic pump                    | 23.12.2006 | 1 | ENERTEK            |

|     |                                    |            |    |                      |
|-----|------------------------------------|------------|----|----------------------|
| 127 | Stitching machine                  | 23.12.2006 | 1  | -                    |
| 128 | Autoclave                          | 02.02.2006 | 1  | PISCES               |
| 129 | Electronic balance                 | 21.10.2007 | 1  | MADRAS<br>SCIENTIFIC |
| 130 | Gene sequencer                     | 02.02.2006 | 1  | PISCES               |
| 131 | Genei cooler                       | 27.02.2006 | 4  | GENEI                |
| 132 | Gel drier                          | 09.03.2006 | 1  | GENEI                |
| 133 | Gel documentation system           | 11.03.2006 | 1  | PISCES               |
| 134 | Hot air oven                       | 02.02.2006 | 1  | PISCES               |
| 135 | Inverted tissue culture Microscope | 24.03.2007 | 1  | WESWOX               |
| 136 | Ligation bath                      | 09.03.2006 | 1  | GENEI                |
| 137 | Lux meter                          | 14.03.2006 | 1  | LABWARES             |
| 138 | Laminar air flow chamber           | 09.02.2006 | 1  | PISCES               |
| 139 | Magnetic stirrer                   | 02.02.2006 | 1  | PISCES               |
| 140 | Microcentrifuge                    | 27.02.2006 | 4  | GENEI                |
| 141 | Mini immuno electrophoresis system | 27.02.2006 | 6  | GENEI                |
| 142 | Micropipette                       | 09.03.2006 | 6  | GENEI                |
| 143 | Mini sub system                    | 27.02.2006 | 1  | GENEI                |
| 144 | Platform rocker                    | 27.02.2006 | 2  | GENEI                |
| 145 | Vortex mixer                       | 02.02.2006 | 1  | PISCES               |
| 146 | White light illuminator            | 02.02.2006 | 1  | PISCES               |
| 147 | Weswox microscope                  | 31.5.1995  | 15 | WESWOX               |
| 148 | Compound Microscope                | 31.05.1995 | 2  | ERMA                 |
| 149 | Research Microscope                | 31.05.1995 | 1  | DOLLAR               |
| 150 | Compound Microscope                | 31.05.1995 | 15 | DOLLAR               |
| 151 | Research Microscope                | 26.07.1995 | 4  | DOLLAR               |
| 152 | Student Microscope                 | -          | 8  | LINKER               |
| 153 | Bright Field Microscope            | 13.07.1996 | 2  | DOLLAR               |

|     |  |            |   |         |
|-----|--|------------|---|---------|
| 154 | Microscope Olympus Trinocular<br>Fluorescence Microscope-BX-51 | 23.10.2006 |   | OLYMPUS |
| 155 | Medical Microscope   | 02.01.2003 | 1 | -       |
| 156 | Tissue Culture Microscope                                      | -          |   | OLYMPUS |
| 157 | Phase Contrast Microscope                                      | -          | 1 | WESWOX  |
| 158 | Projection Microscope  | -          | 1 | RADIAL  |
| 159 | Binocular Microscope   | -          | 1 | ALMICRO |
| 160 | Trinocular Research Microscope-<br>CX-41                       | 23.10.2006 | 1 | OLYMPUS |
| 161 | Trinocular Research Microscope-<br>CX-31                       | 23.10.2006 | 1 | OLYMPUS |
| 162 | Fluorescent Microscope with colour<br>Video Monitor            | -          | 1 | -       |
| 163 | Stereomicroscope   | 13.07.1996 | 1 | -       |

## MICROSCOPES

### OLYMPUS TRINOCULAR FLUORESCENCE MICROSCOPE-BX-51

#### Olympus Trinocular Fluorescence Microscope-BX-51

BX-51 is a unique microscope having facilities for teaching 4 students at a time by a teacher. All the types of microscopes including Bright field, Dark field, Phase contrast and Fluorescent Microscopes are present in the same unit with photography. The microscope CX-41 have the provision of attaching a camera and CX-31 is a normal research microscope with illumination



**OLYMPUS-CX-41**

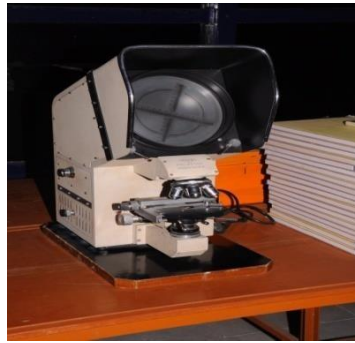
**OLYMPUS-CX-31**



## INVERTED TISSUE CULTURE MICROSCOPE

An **inverted microscope** is a microscope with its light source and condenser on the top, above the stage pointing down, while the objectives and turret are below the stage pointing up

## PROJECTION MICROSCOPE



## BINOCULAR MICROSCOPES



## ATOMIC ABSORPTION SPECTROPHOTOMETER



AAS can be used to determine over 70 different elements in solution or directly in solid samples used in pharmacology, biophysics and toxicology research.

Atomic absorption spectrometry has many uses in different areas of chemistry such as:

- Clinical analysis: Analyzing metals in biological fluids and tissues such as whole blood, plasma, urine, saliva, brain tissue, liver, muscle tissue, semen
- Pharmaceuticals: used for analyzing minute quantities of a catalyst that remain in the final drug product
- Water analysis: Analyzing water for its metal content.

## FLAME PHOTOMETER



Photoelectric flame photometer is a device used in inorganic chemical analysis to determine the concentration of certain metal ions, among them sodium, potassium, lithium, and calcium.



## HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

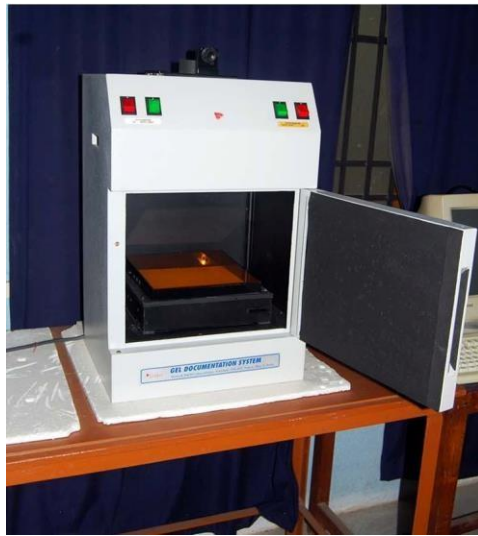


HPLC has contributed to analytical solutions in diverse fields such as Pharmaceuticals, foods, life sciences, environment, forests, etc.

## GAS CHROMATOGRAPHY



## GEL DOCUMENTATION SYSTEM



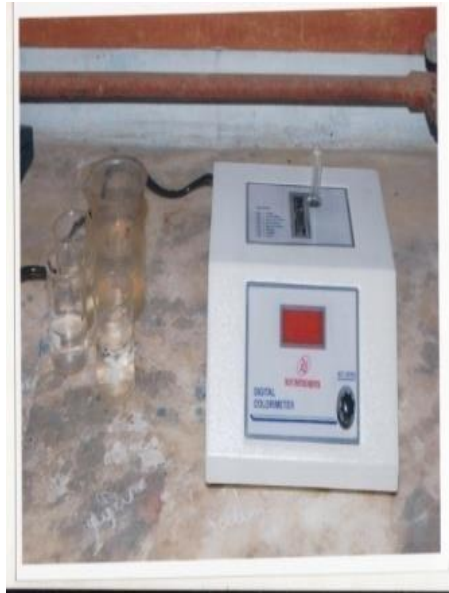
**FERMENTOR**



**MICKEL SHAKER**



## COLORIMETER



## FLUOROMETER



A **fluorometer** or **fluorimeter** is a device used to measure parameters of fluorescence

## MUFFLE FURNACE



A **muffle furnace** (sometimes, **retort furnace**) in historical usage is a furnace in which the subject material is isolated from the fuel and all of the products of combustion including gases and flying ash.

## DEEP FREEZER



## SEMI AUTOANALYZER



## FLAME PHOTOMETRY



## ELECTRONIC CHEMICAL BALANCE



## DIFFERENTIAL CENTRIFUGATION



## FRACTIONAL DISTILLATION UNIT



## ANIMAL HOUSE



Animal house is used for rearing the animals that are subjected to experimentation. All the favourable conditions needed by the animals are provided in the house. Feeds are given properly and maintained with caution and care.



## INSTRUMENTS FOR MOLECULAR BIOLOGY WORKS



## INSTRUMENTS FOR ANALYTICAL WORKS



  
**Principal**  
**PRINCIPAL**  
Sengamala Thayaar Educational Trust  
Women's College, ( Autonomous )  
Mannargudi.