

KAMARAJ

COLLEGE OF ENGINEERING & TECHNOLOGY



(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)
S.P.G.Chidambara Nadar - C.Nagammal Campus
S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

DEPARTMENT	SLIDE No
BIOTECHNOLOGY	2
CIVIL ENGINEERING	29
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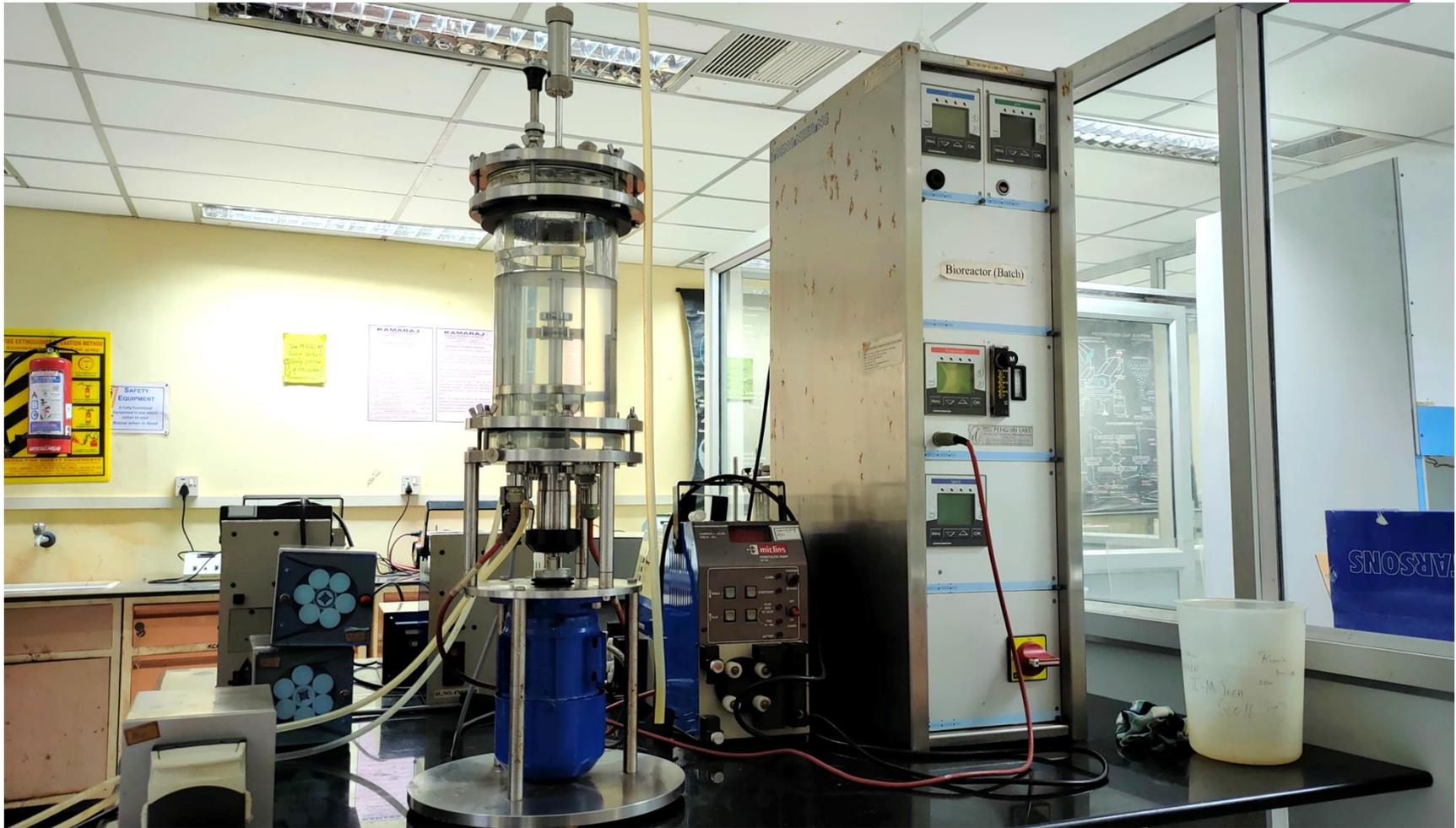
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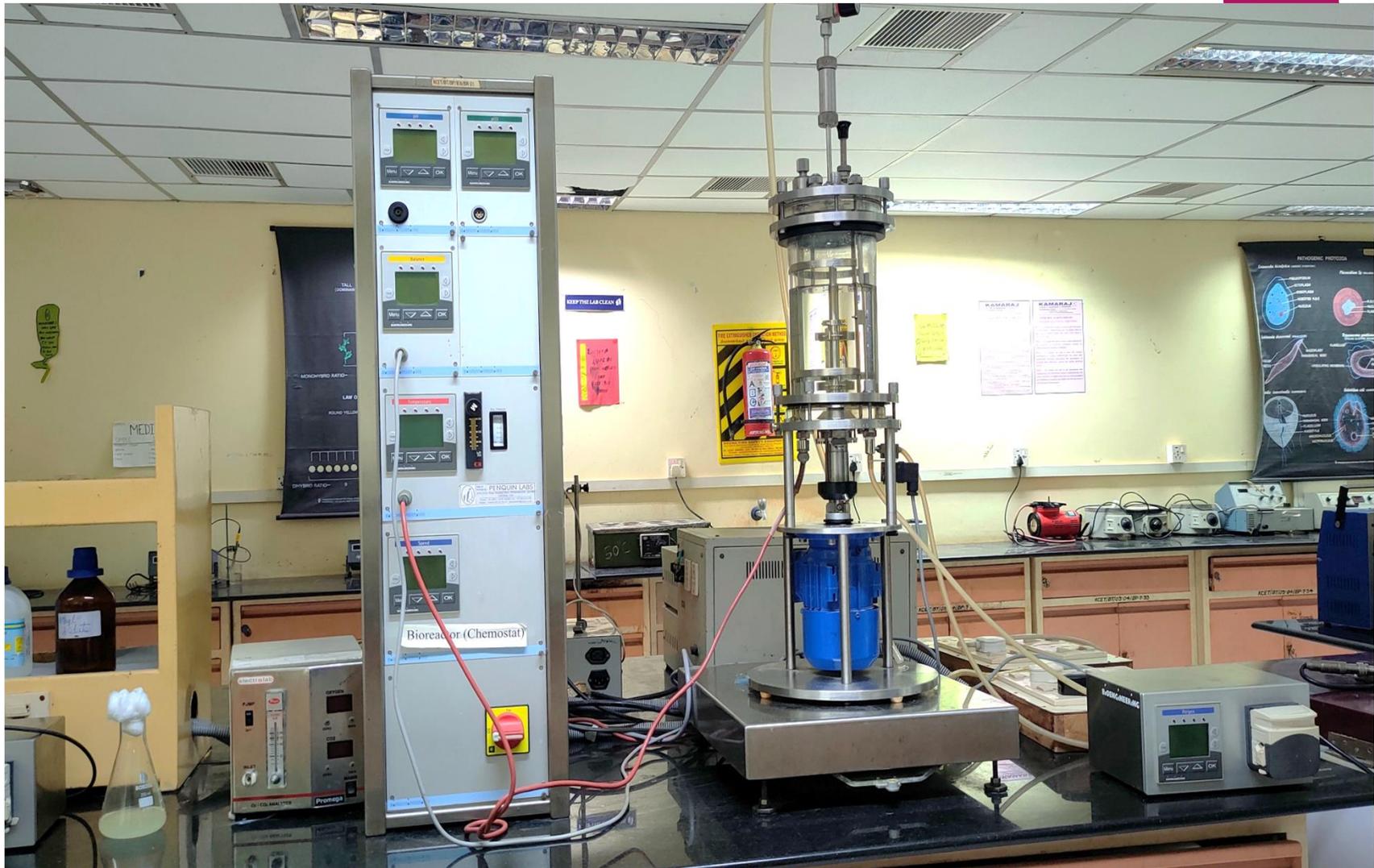
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Department of Biotechnology

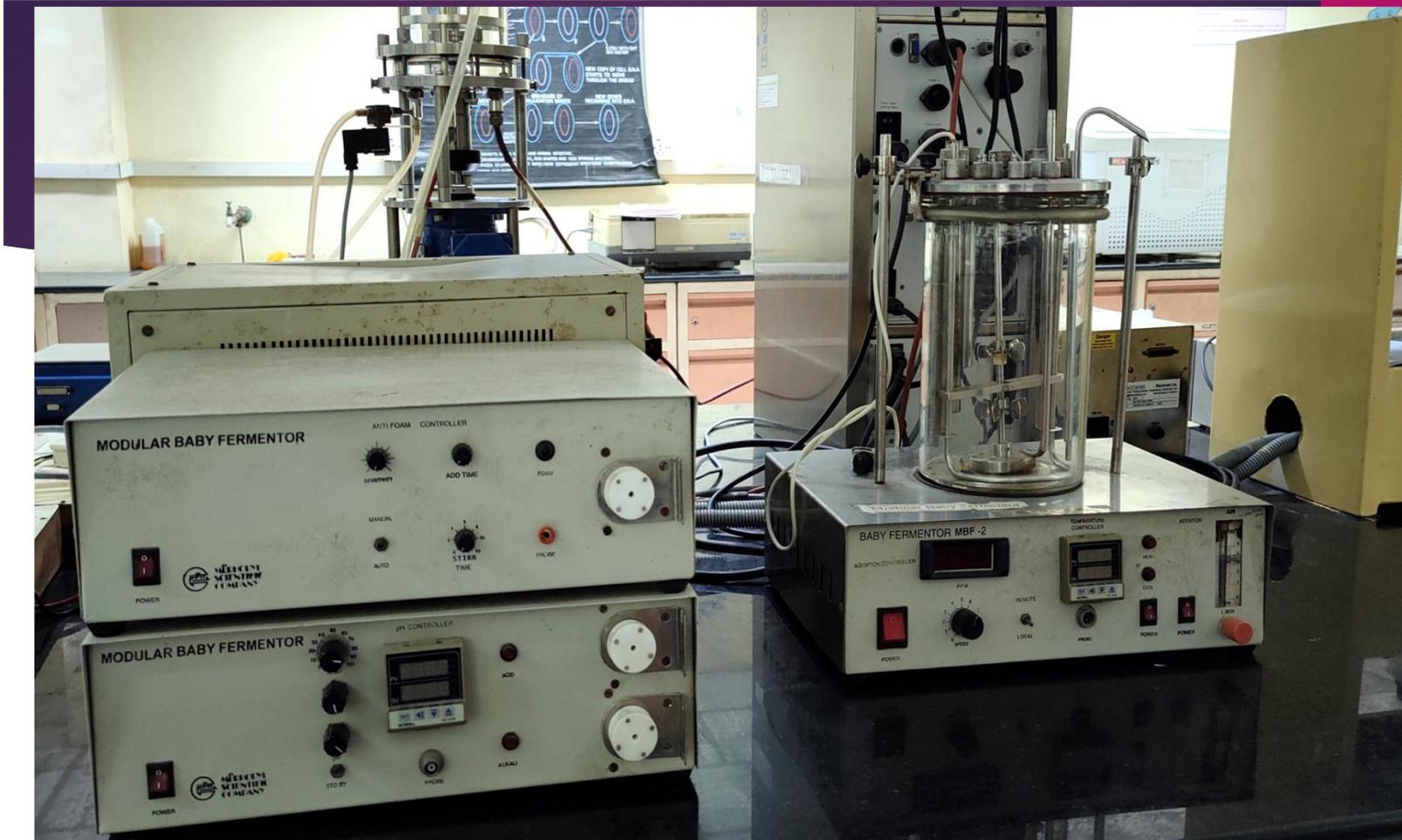
RESEARCH FACILITIES



BIOREACTOR (BATCH)



BIOREACTOR (CHEMOSTAT)



BABY FERMENTOR



PREPARATIVE HPLC



UV-VIS SPECTROPHOTOMETER



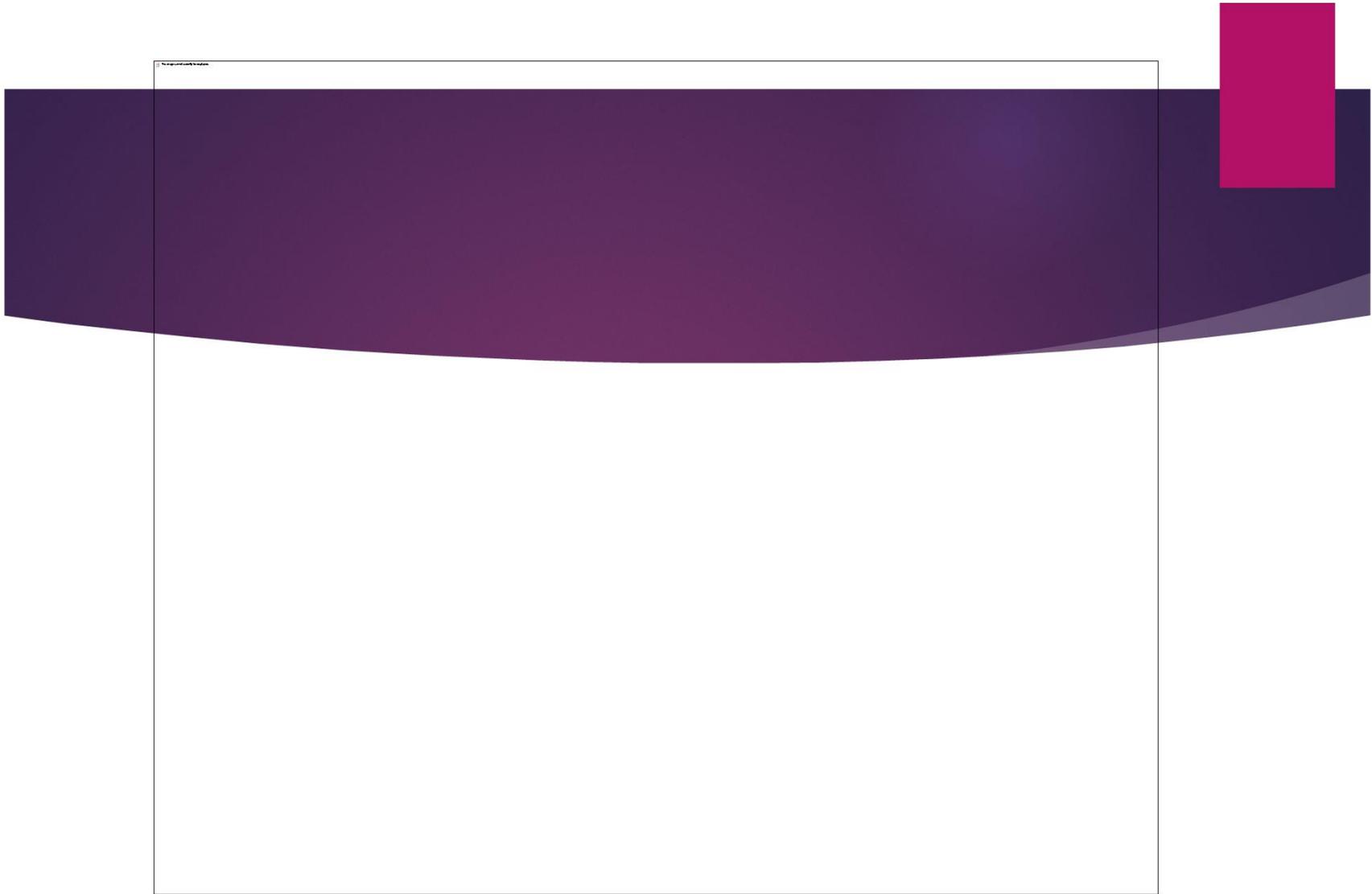
MICRO PLATE READER



2D GEL ELECTROPHORESIS



THERMAL CYCLER



MINI THERMAL CYCLER



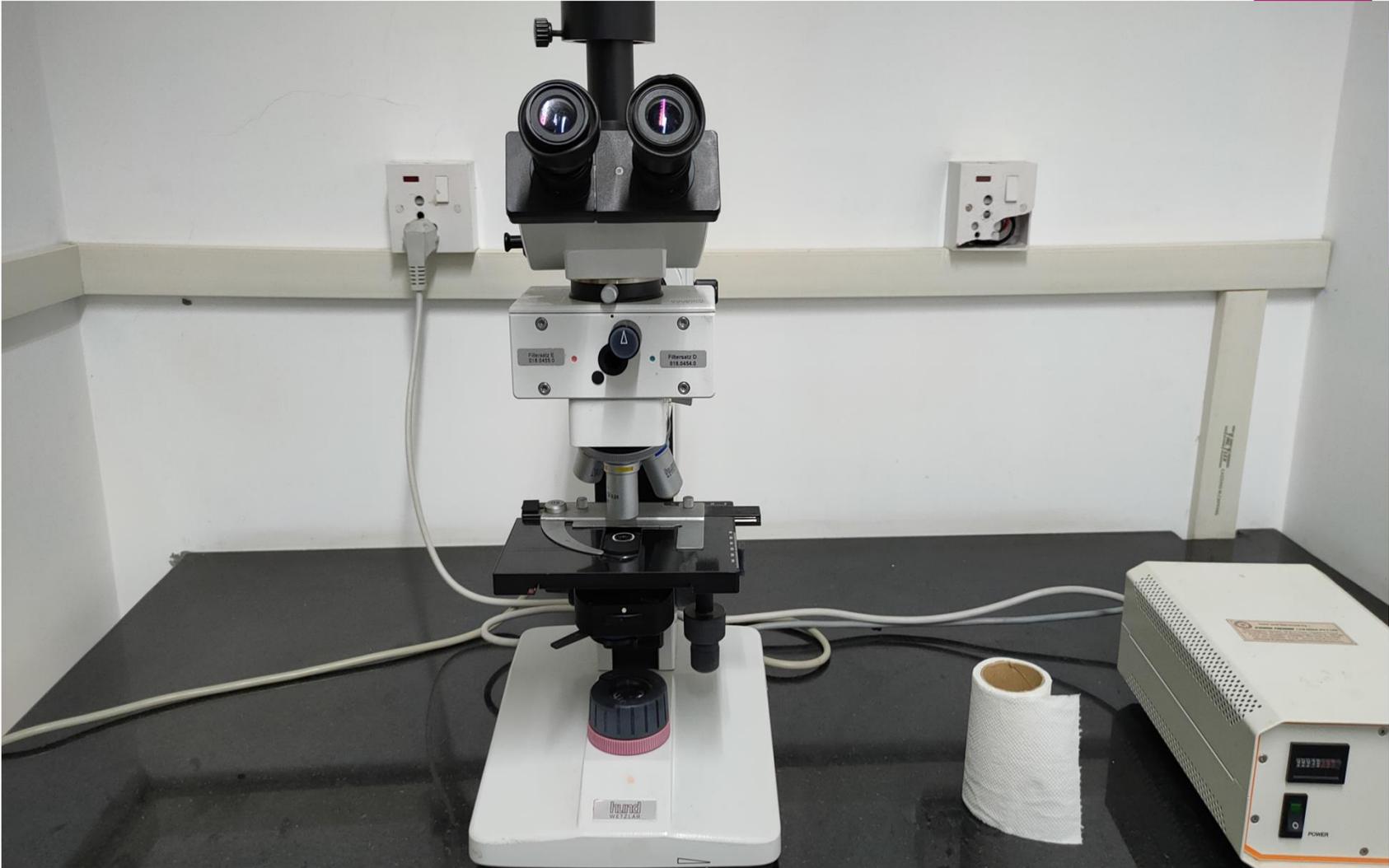
MICROPULSER



GEL DOCUMENTATION SYSTEM



LIGHT MICROSCOPE



FLUORESCENT MICROSCOPE



SONICATOR



HOMOGENIZER



SPRAY DRYER



LYOPHILIZER



COOLING CENTRIFUGE



PHOTOFLUOROMETER



DIGITAL TURBIDITY METER



AUTOCLAVE



SHAKING INCUBATOR



INCUBATOR



HOT AIR OVEN



CO₂ INCUBATOR



LAMINAR AIR FLOW

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DEPARTMENT OF CIVIL ENGINEERING

RESEARCH FACILITIES



LIST OF LABORATORIES

- ▶ **Structural Engineering Laboratory**
- ▶ **Strength of Materials Laboratory**
- ▶ **Survey Laboratory**
- ▶ **Computer Aided Building Drawing**
- ▶ **Fluid Mechanics & Hydraulics Laboratory**
- ▶ **Environmental Engineering Laboratory**
- ▶ **Concrete & Highway Laboratory**
- ▶ **Soil Mechanics Laboratory**

Research Facilities in Department of Civil Engineering

Major Equipments

- 100 Ton Loading Frame
- Hydraulic Remote type Jack - 100 Ton
- Data Acquisition System
- Load Cell - Compression type Capacity 50 Ton &100 Ton
- Electrical Strain Gauge with indicator
- Ultrasonic Pulse Velocity Tester

Research & Consultancy

- Structural Competency & Report



**Structural Engineering
Laboratory**

Research Facilities in Department of Civil Engineering

Major Equipments

- Universal Testing Machine
- Torsion Testing Machine
- Hardness Testing Machine
- Izod Impact Testing Machine

Research & Consultancy

- Concrete strength testing
- Steel, Aluminium, Copper & Bronze strength testing
- Hardness & Elastic Modulus



Strength of Materials Laboratory

Research Facilities in Department of Civil Engineering

Major Equipments

- Total Station
- Theodolite
- Dumpy level
- Hand held GPS

Research & Consultancy

- Transverse Survey (Determination of Area & Volume)
- Profile Survey (Determination of Longitudinal section & Cross section)
- Digital Mapping using Total Station



Survey Laboratory

Research Facilities in Department of Civil Engineering

Major Equipments

- BOD Analyser
- COD Analyser
- Ion – selective electrode
- Atomic absorption spectroscopy (Ni, Zn, Pb)
- Jar Test Apparatus

Research & Consultancy

- Water Analysis
- Waste Water Analysis
- Heavy Metals Determination



Environmental Engineering Laboratory

Research Facilities in Department of Civil Engineering

Major Equipments

Flow table motorized
Vee bee consist meter
Marshall Stability apparatus
motorized
Ductility Apparatus for
Bitumen

Research & Consultancy

- Compression Strength Test
(Concrete Cube, Paver block,
Block, Timber)



**Concrete & Highway
Laboratory**

Research Facilities in Department of Civil Engineering

Major Equipments

- Consolidation Apparatus three gang
- Unconfined Compression Tester
- Relative Density Apparatus
- Direct Shear Apparatus 12 Speed

Research & Consultancy

- Soil Classification
- Strength Characteristics
- Shear Characteristics
- Standard Penetration Test (SBC determination)



**Soil Mechanics
Laboratory**

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**DEPARTMENT OF COMPUTER
SCIENCE AND ENGINEERING**

RESEARCH FACILITY

Artificial Intelligence & IoT Laboratory



System Configurations

DELL OPTIOLEX i5-4570

4GB DDR3 RAM/500GB HDD/18.6" LCD Monitor - 15

DELL OPTIOLEX i5-4570

8GB DDR3 RAM/500GB HDD/18.6" LCD Monitor – 4

DELL OPTIOLEX i3-4130

4GB DDR3 RAM/500GB HDD/18.6" LCD Monitor – 2

HCL – INFINTIL A350

Intel H55 / Core i3 / 4GB DDR3 RAM/500GB HDD/ 15.6" LCD Wide Monitor – 2



NVIDIA JETSON NANO DEVELOPER KIT



- 4GB RAM / 64GB Micro SD Card - 15 Nos.
- OS : UBUNTU 20.0.4

RASPBERRY PI 4

- 2GB RAM / 32GB Micro SD Card– 10 Nos.
- OS : UBUNTU 20.0.4
- Software : Arduino Uno



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**DEPARTMENT OF ELECTRONICS AND
COMMUNICAION ENGINEERING**

RESEARCH FACILITIES

Research Facilities in Department of Electronics and Communication Engineering

Major Equipment

1. Digital Storage Oscilloscope/
Cathode Ray Oscilloscope
2. Function Generator
3. Regulated Power Supply
4. ORCAD Capture with PSPICE
5 users 16.2



Electronics Devices and Circuit Laboratory

Research Facilities in Department of Electronics and Communication Engineering

Major Equipment

1. Digital Storage Oscilloscope/
Cathode Ray Oscilloscope
2. Function Generator
3. Regulated Power Supply
4. ORCAD Capture with
PSPICE A/D 2 users 10.5



Linear and Digital IC Circuit Laboratory

Research Facilities in Department of Electronics and Communication Engineering

Major Equipment

1. Multi signal Digital / Cathode Ray Oscilloscope



Engineering Practices Laboratory

Research Facilities in Department of Electronics and Communication Engineering

Major Equipment

1. Digital IC trainer Kit
2. Universal IC Tester



**Digital Electronics
Laboratory**

Research Facilities in Department of Electronics and Communication Engineering

Major Equipment

1. Digital Storage Oscilloscope
2. Function Generator
3. Analog & RF Communication kits
4. Line coding kits
5. Spectrum Analyzer
6. FM, PCM, PAM, PPM, PWM Kits
7. ASK, PSK, ADC & DAC Kits

Communication System Laboratory



Research Facilities in Department of Electronics and Communication Engineering

Major Equipment

1. Reflex Klystron
2. Gunn Diode
3. VNA
4. Fiber optic system set
5. Compact Microwave Lab Kit
Model No. VX-2002,2005
6. Microwave Power meter Model
No. Attest
7. Agilent DSOx2002A 70MHz 2
channel DSO



Communication Microwave Laboratory

Research Facilities in Department of Electronics and Communication Engineering

Major Equipment

1. 8086 Microprocessor kit
2. 8051 Microcontroller Kit,
Interfacing Kits
3. 8051 Primer board
4. MSP 430 F5529 Experimenter
board with USB debugger etc.,
5. Anvyl Spartan 6 FPGA board
with pmod pack

**Microprocessor &
Microcontroller
Laboratory**

Research Facilities in Department of Electronics and Communication Engineering

Major Equipment

1. Intel core i5
2. AnvylSparton 6
3. Zynq kit
4. Genesys Virtex-5
5. Tanner software
6. Vivado kits
7. Xilinx software
8. spartan 3E FPGA kit
9. Matlab R2009a

VLSI & DSP Laboratory

Research Facilities in Department of Electronics and Communication Engineering

Major Equipment

1. ARM Cortex M4- Kits, Arduino Kits,
2. Node MCUs,
3. Raspberry Pi B+
4. Model kits and various sensor
5. NS2 Software

**Embedded systems
laboratory &
Research Laboratory
PG Laboratory
(Comm.& Networking)**

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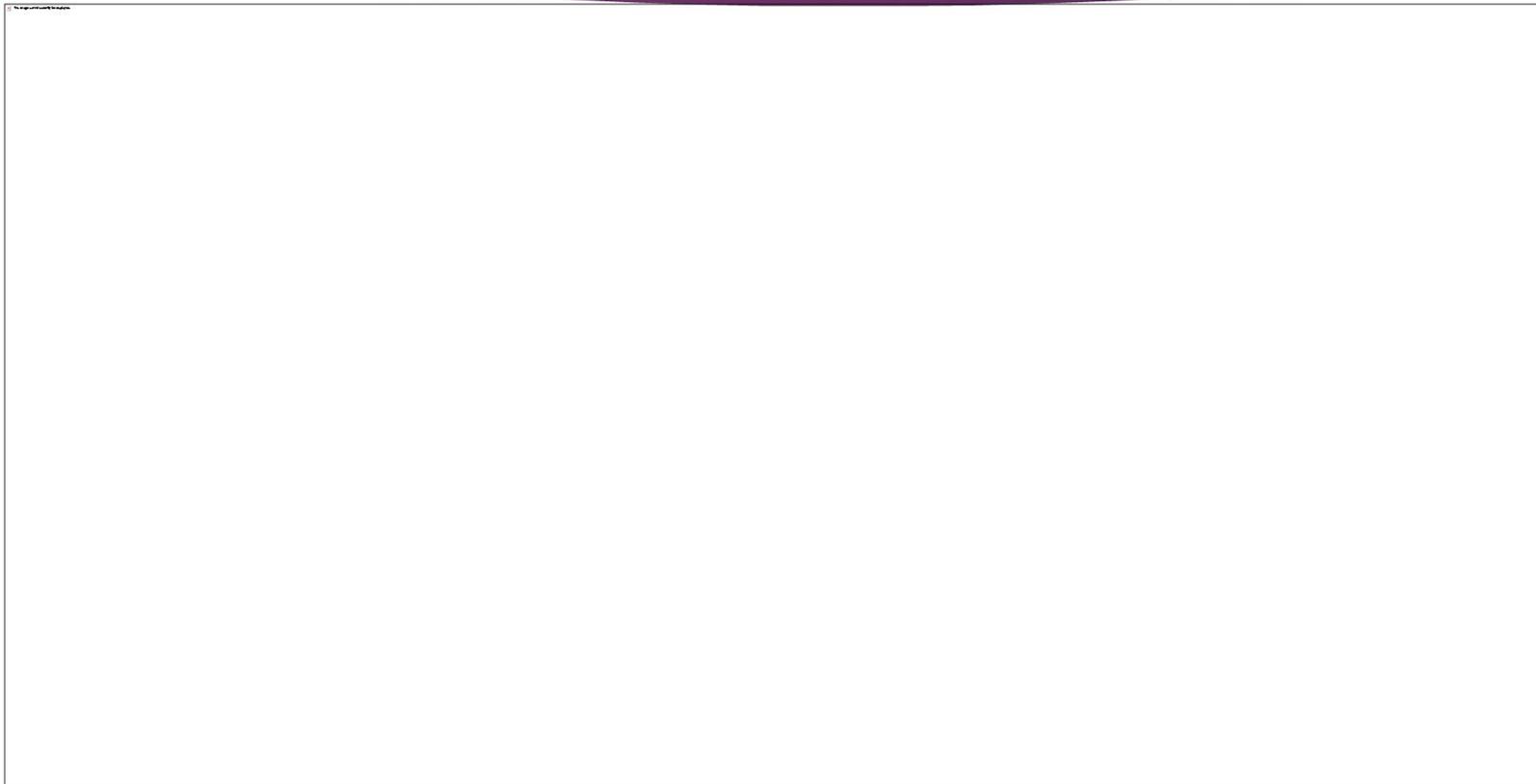
**DEPARTMENT OF ELECTRICAL AND
ELECTRONICS ENGINEERING**

RESEARCH FACILITIES

FUEL CELL TRAINER

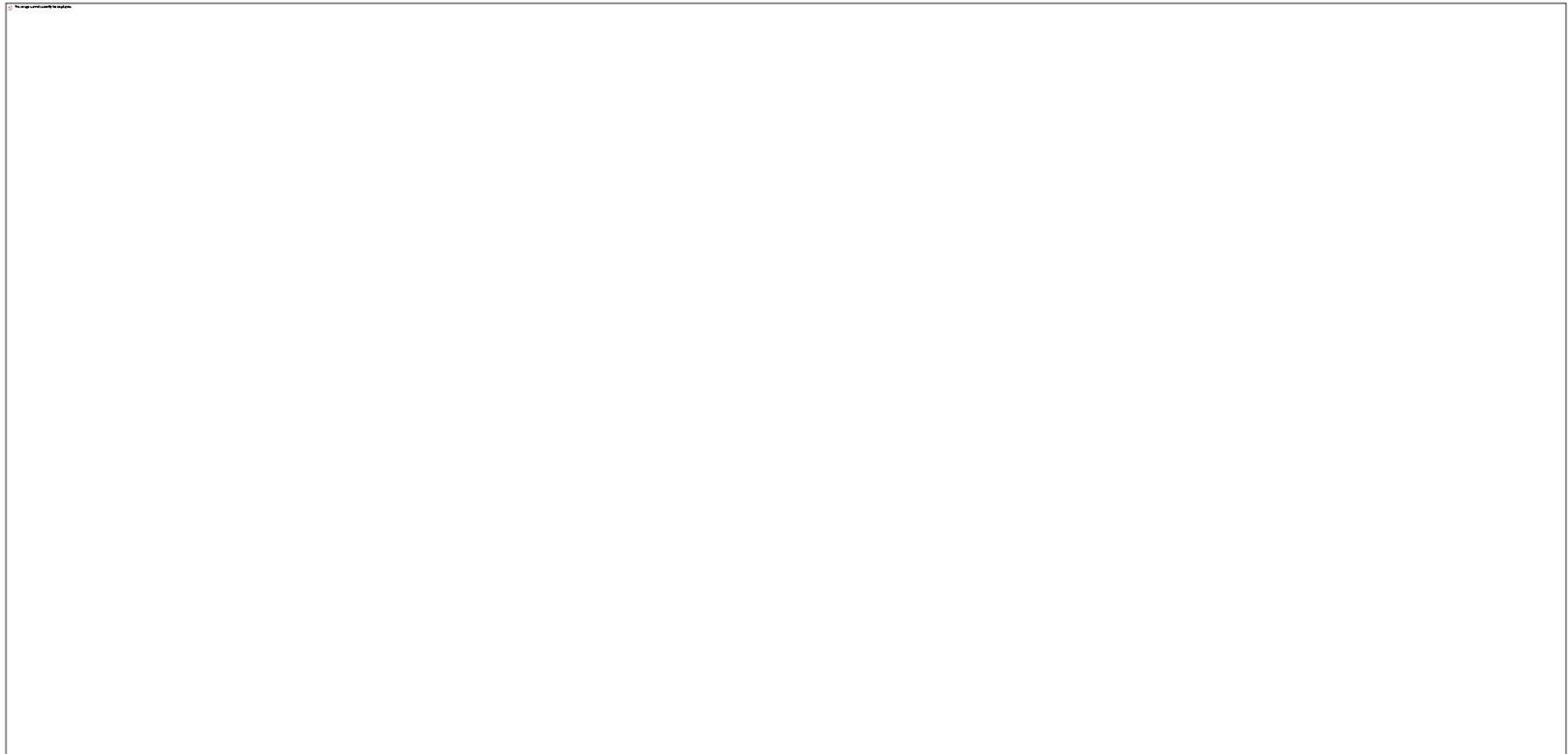


SIMULATED TRANSMISSION LINE





PROGRAMMABLE LOGIC CONTROLLER

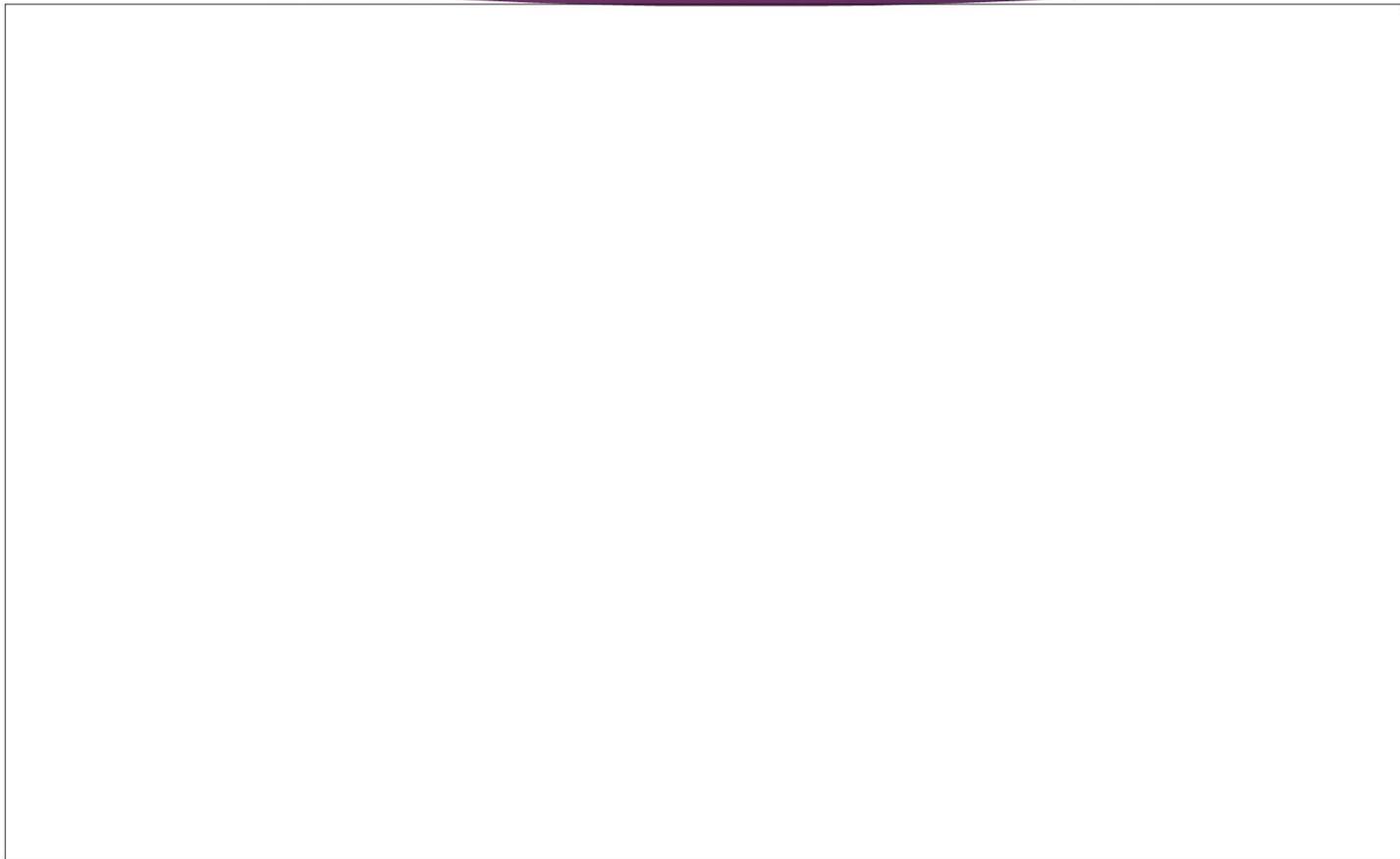


CONVERTERS

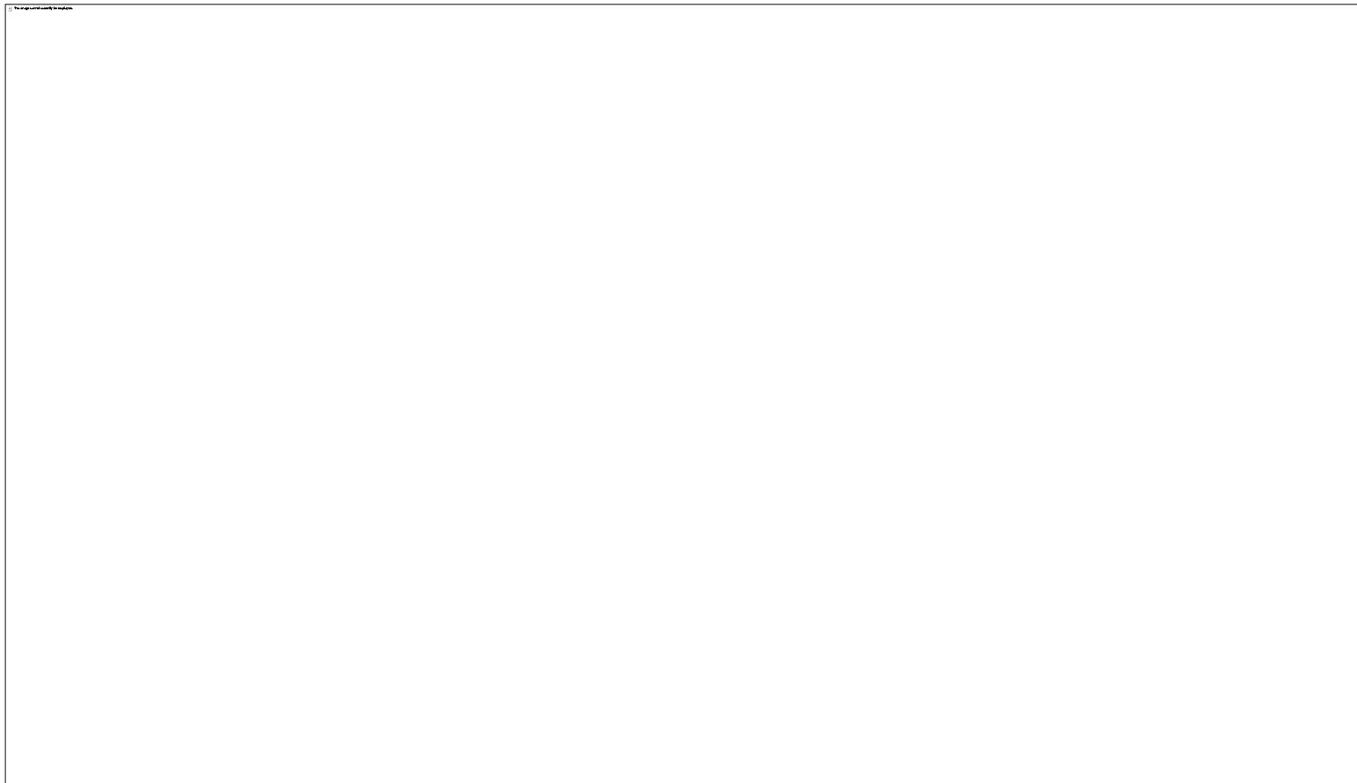




PYRANOMETER WITH DATA LOGGER



SWITCHING MATRIX CIRCUIT

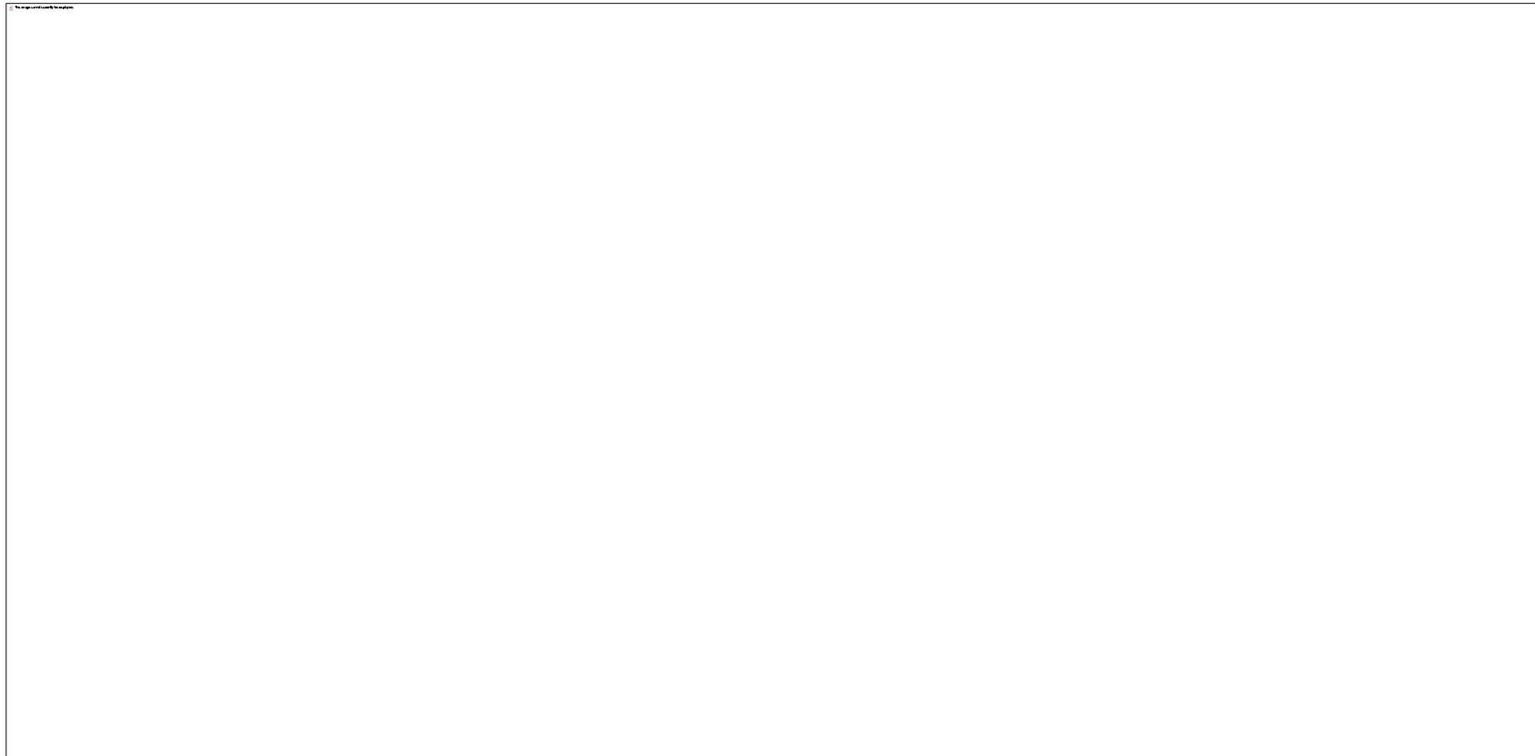




MICROWIND GENERATOR 500 W

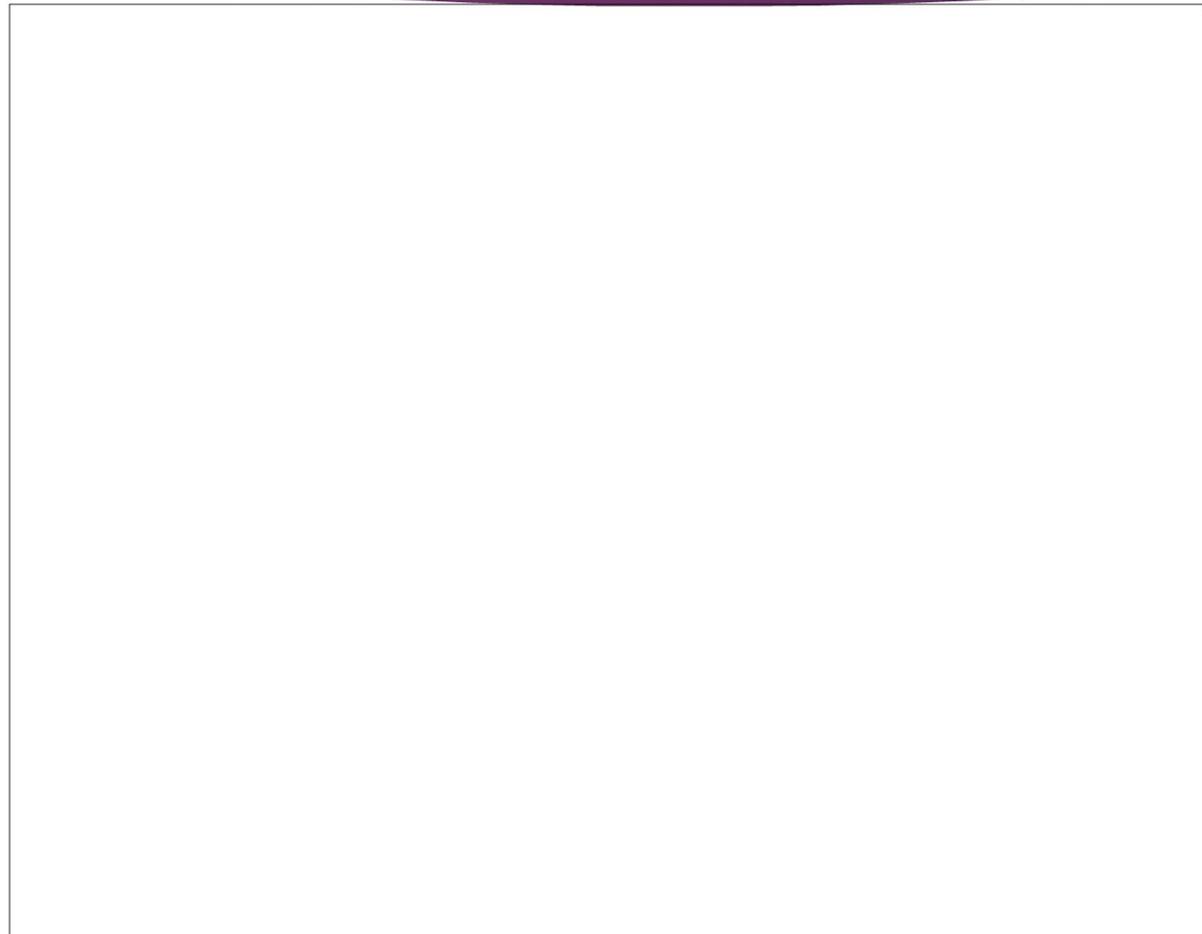


THERMAL IMAGING CAMERA

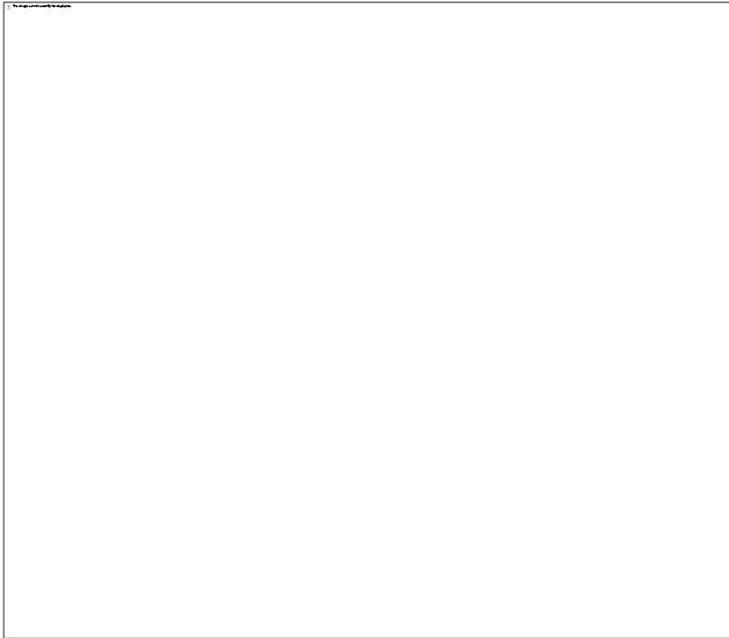




AC METERS AND DC METERS

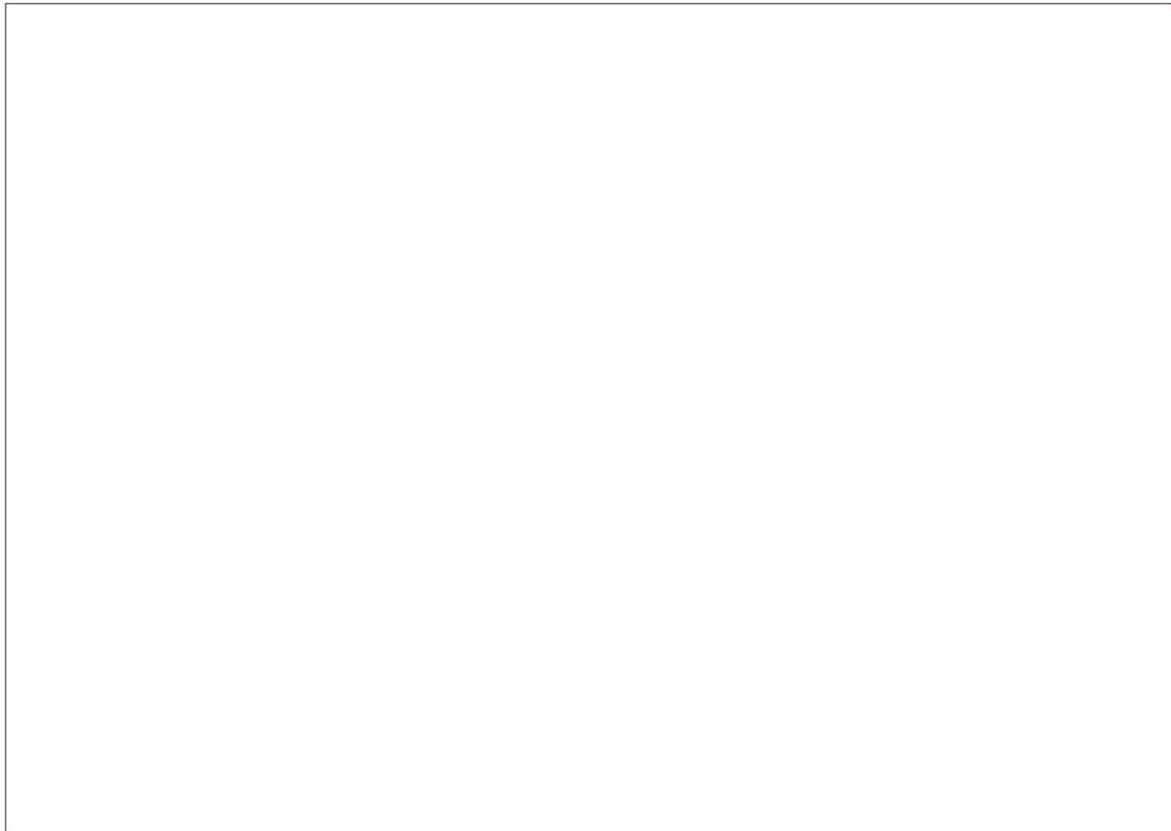


SOLAR PV PANELS

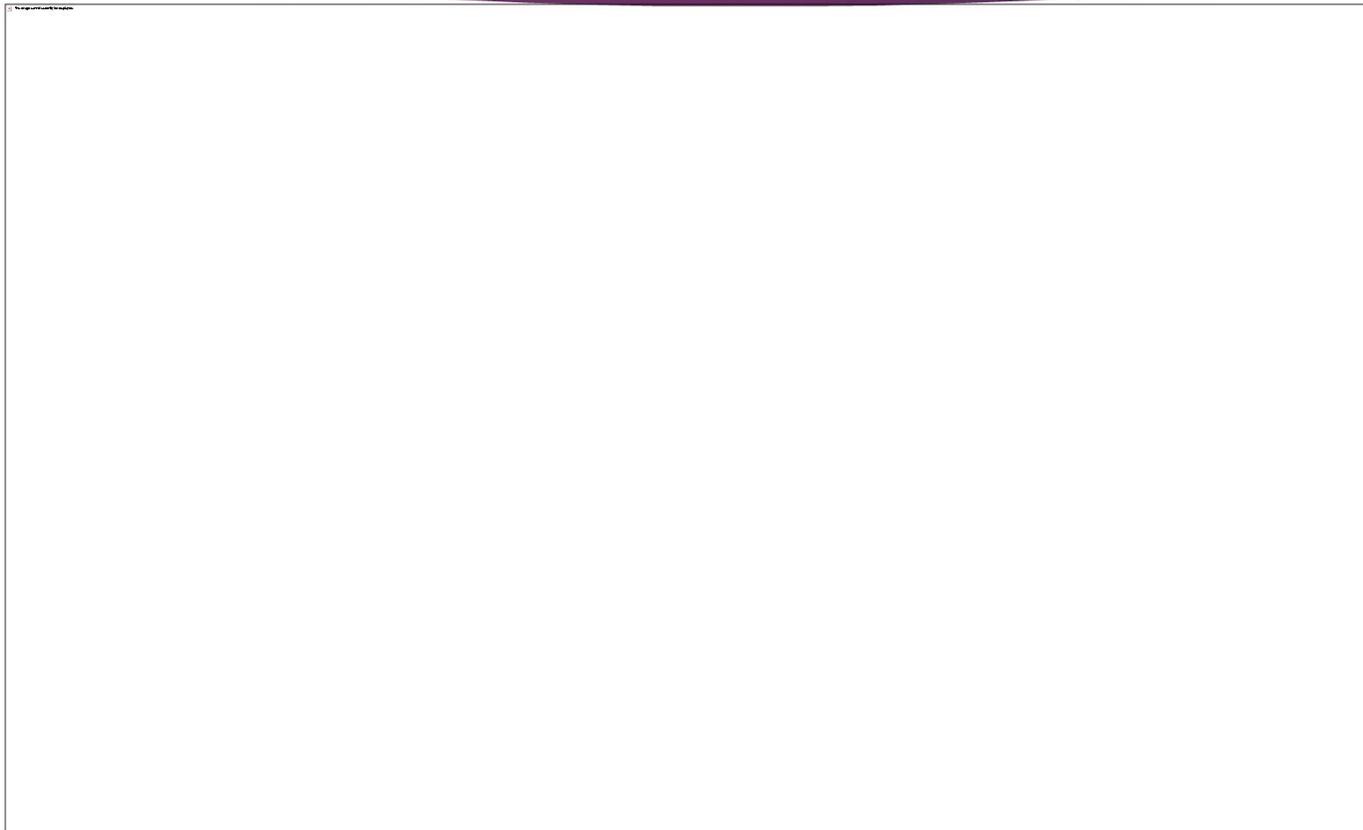




SOLAR INVERTER AND BATTERY



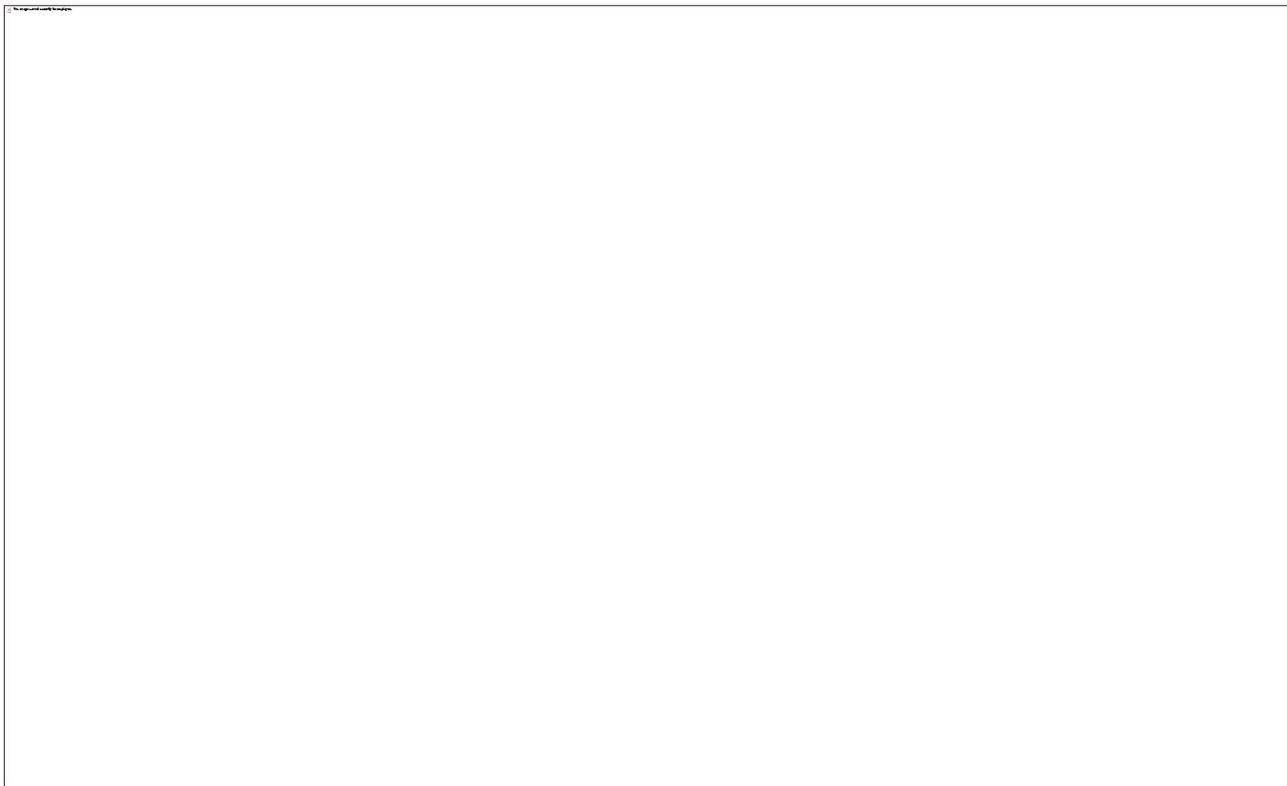
DC TEST BENCH



SERVER SYSTEM



JETSON NANO SYSTEM



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**DEPARTMENT OF ELECTRONICS AND
INSTRUMENTATION ENGINEERING**

RESEARCH FACILITIES



LIST OF LABORATORIES

- ▶ **Process Control Laboratory**
- ▶ **Virtual Instrumentation Laboratory**
- ▶ **Industrial Instrumentation Laboratory**
- ▶ **Sensors and Measurements Laboratory**

PROCESS CONTROL LABORATORY

Major Equipments

- Coupled tank System
- Level Process station
- Flow Process station
- Temperature Process station
- Pressure Process station

Research

- System Identification
- Tuning of controllers

VIRTUAL INSTRUMENTATION LABORATORY

Major Equipments

- LabVIEW 2019 Software-50 users
- myDAQ: Measurement and Data logging
- myRIO: Embedded Monitoring and Control
- IoT enabled Robotic System Design
- IoT enabled System Design hardware

Research

- Control and Automation of system
- IoT based data analysis of system

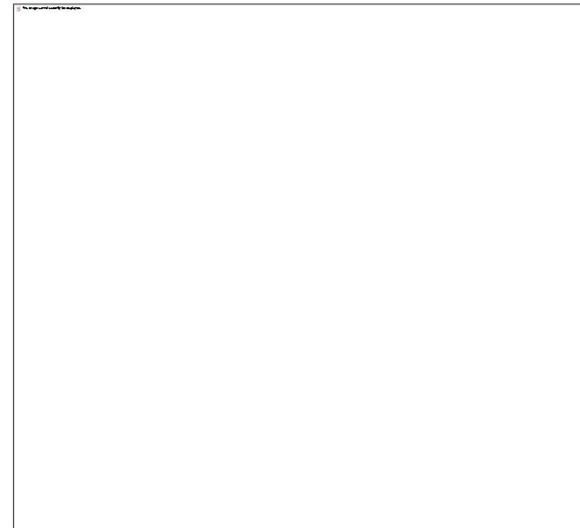
INDUSTRIAL INSTRUMENTATION LABORATORY

Major Equipments

- Dual Channel Spectrophotometer
- Electromagnetic Flow meter
- Fiber optic Level measurement
- Multifunction Calibrator
- Brookfield Viscometer

Research

- Study of characteristics of flow meters, level sensors
- Measurement of composition of samples
- Calibration of Instruments



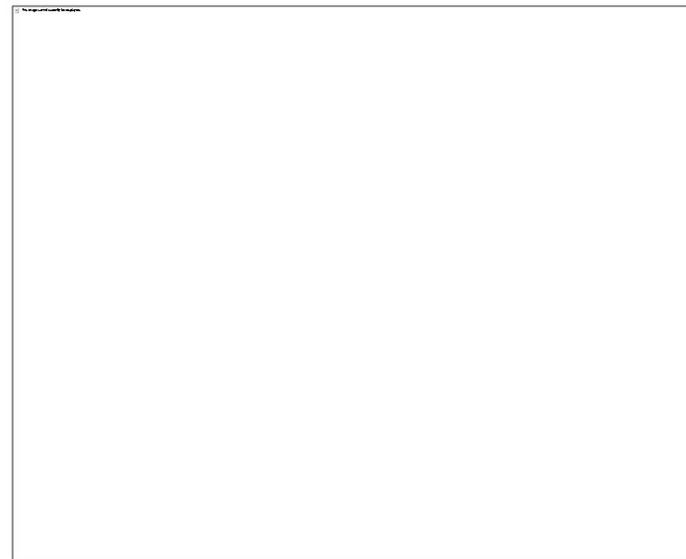
SENSORS AND MEASUREMENTS LABORATORY

Major Equipments

- 100 MHz Dual channel DSO
- Gauss meter
- Thermocouple and RTD calibrator
- ECG Measurement Kit

Research

- Calibration of Instruments
- ECG analysis



DEPARTMENT OF INFORMATION TECHNOLOGY

RESEARCH FACILITIES

APPLE LAB

- Number of Computers : 31
- Number of Printer : 01
- Configuration
 - Intel Core i5 3.5Ghz
 - 8GB RAM
 - 1TB HDD
- Software - Android Studio, Xcode
- Operating System - Mac OS Mojave
- Lab Course
 - Mobile Application
Development Lab

SECURITY LAB

- Number of Computers : 33
- Configuration
 - Intel Core i5 3.2Ghz
 - 6GB DDR3 RAM
 - 500GB SATA HDD
- Software - Microsoft SQL Server 2008, NetBeans IDE 8, Java8, Scilab, Eclipse
- Operating System - Windows 10
- Lab Courses
 - Security Lab
 - Web Technology Lab

Data Analytics Lab

- Configuration
 - Intel Core i3 3.2Ghz
 - 4GB DDR3 RAM
 - 500GB SATA HDD
- Number of Computers : 33
- Number of Printers : 01
- Software - Microsoft SQL Server 2005, NetBeans IDE 8, Java 8, Microsoft Visual Studio 2010 Oracle 11g, StarUML 5.0.2, Rstudio
- Operating System - Windows 10
- Lab Courses
 - Database Management Lab
- Value Added Program
 - Full Stack Developer

SOFTWARE ENGINEERING LAB AND NETWORKS LAB

➤ Configuration

- Intel Core i3 3.2Ghz
- 4GB DDR3 RAM
- 500GB SATA HDD

➤ Number of Computers : 66

➤ Number of Printers : 01

➤ Number of Scanners : 01

➤ Software - NS-2, NetBeans IDE 8.0, Java, Python, C, C++

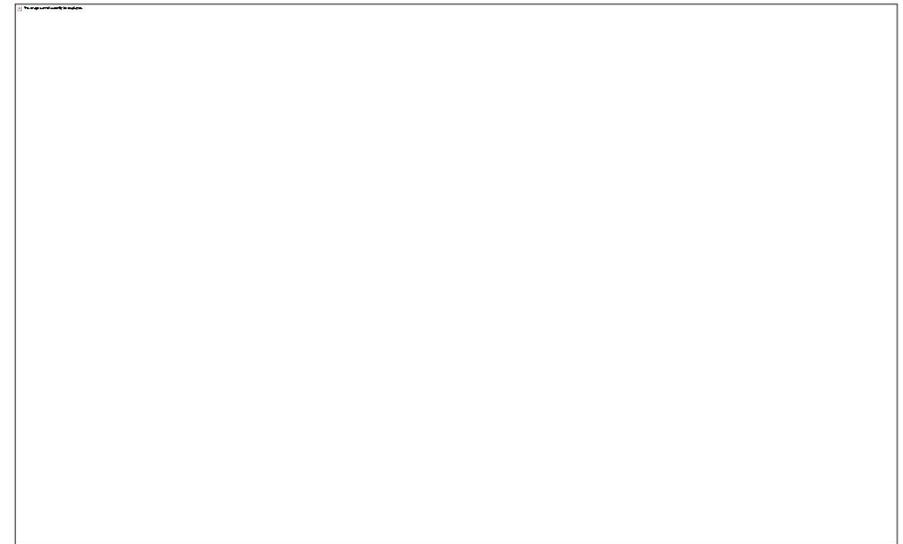
➤ Operating System - CentOS 7

➤ Lab Courses

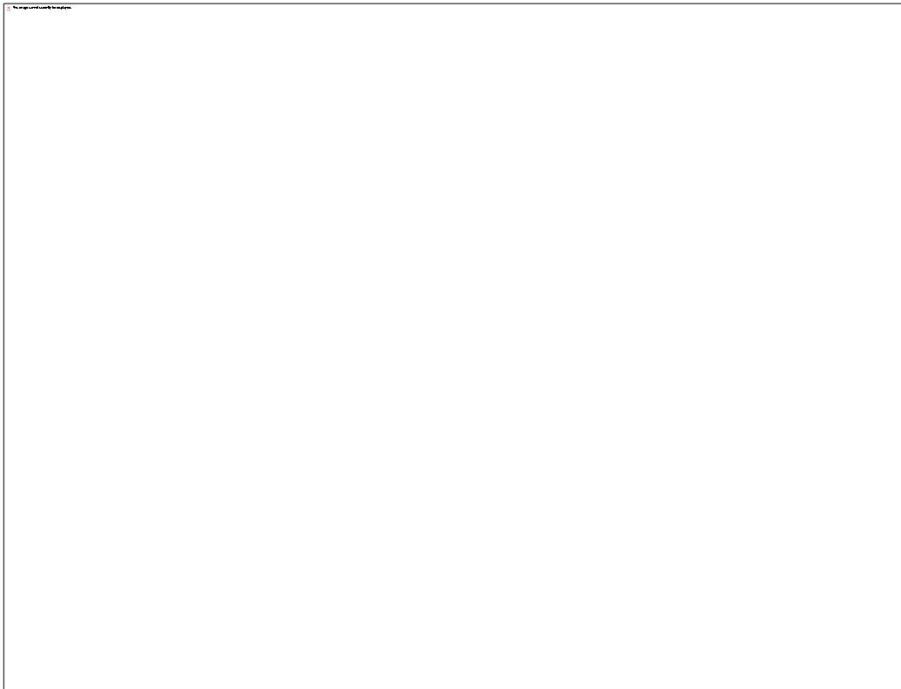
- Object Oriented Programming Lab
- Data Structures Lab
- Networks Lab
- Object Oriented Analysis and Design Lab

MULTIMEDIA LAB

- Number of Computers : 33
- Number of Printers : 02
- Configuration
 - Intel Core i3 3.2Ghz
 - 8GB DDR3 RAM
 - 500GB SATA HDD
- Software - Eucalyptus
- Operating System – CentOS
- Lab Course
 - Grid and Cloud Computing Lab



FOSS LAB



- Number of Computers : 66
- Configuration
 - Intel Core 2 Quad 2.5Ghz
 - 4GB RAM
 - 350 SATA HDD
- Software - Java, C, C++
- Operating System - CentOS 7
- Lab Course
 - Compiler Lab

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DEPARTMENT OF MECHANICAL ENGINEERING

Research Lab Facilitates

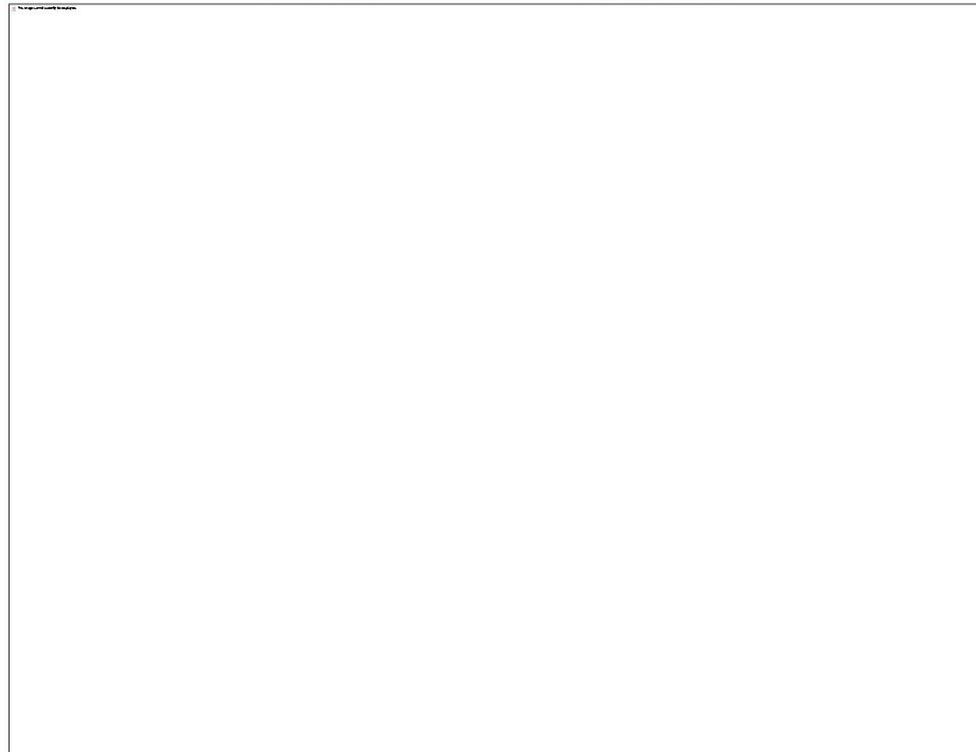


LIST OF RESEARCH EQUIPMENTS

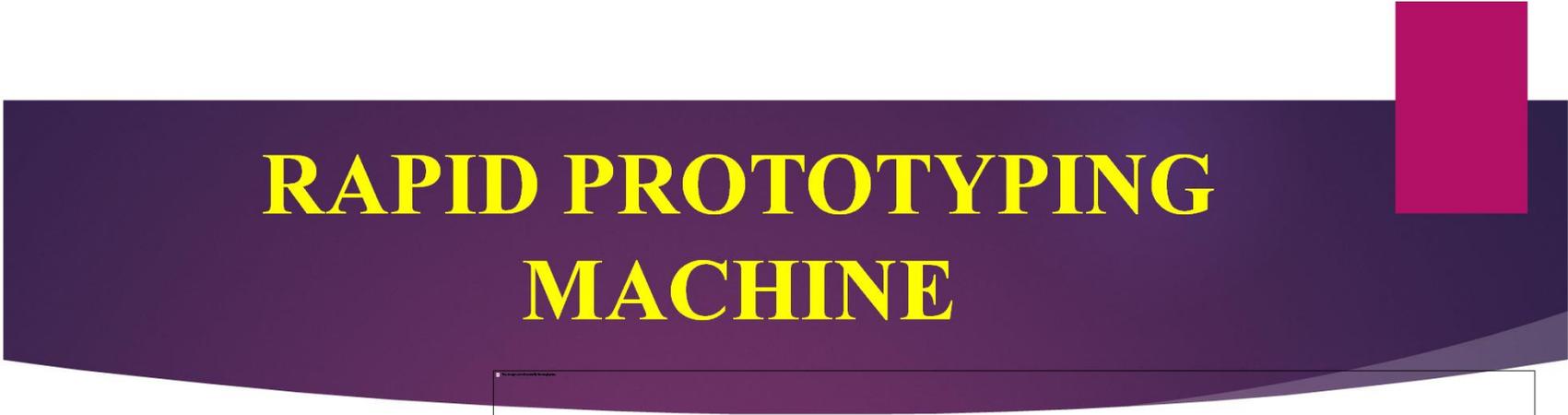
- ▶ Ball milling Work station
- ▶ Rapid prototyping Machine
- ▶ Work stations
- ▶ Weighing Machine
- ▶ Magnetic stirrer

BALL MILLING

Research:



To Convert the materials into Micron or Nano size.



RAPID PROTOTYPING MACHINE

Research:

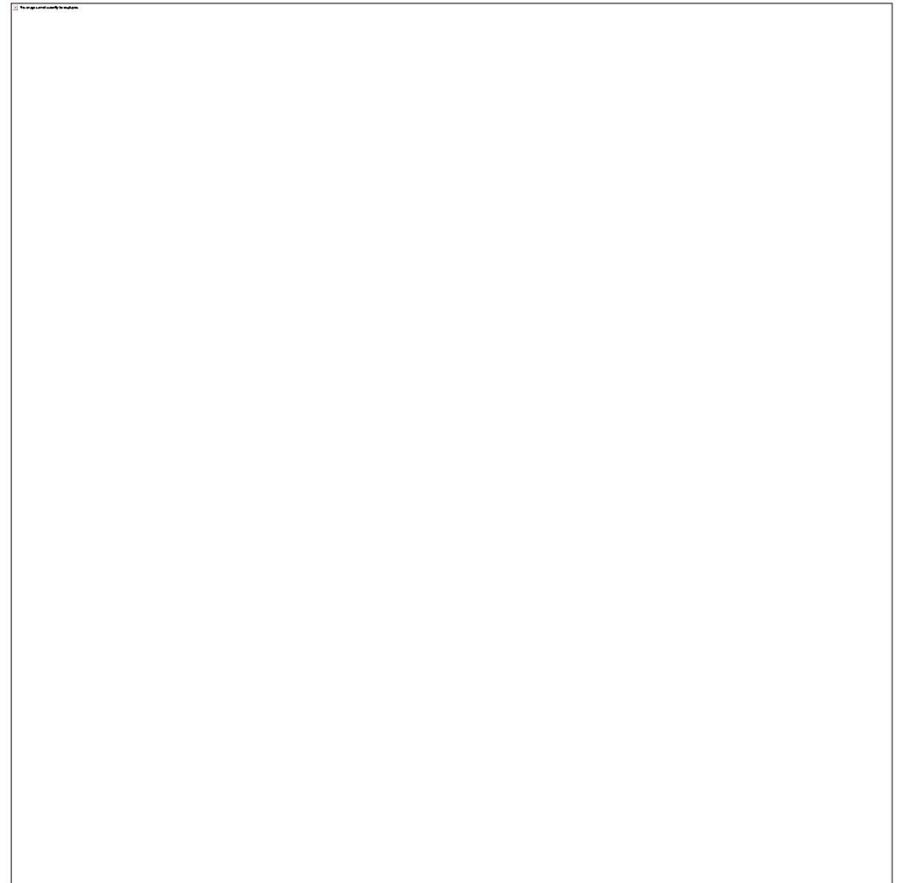
To print the materials into required shape using
filaments



WORK STATIONS

Research:

High end software's installed to
conduct experimentations



ELECTRONIC WEIGHING MACHINE

Research:

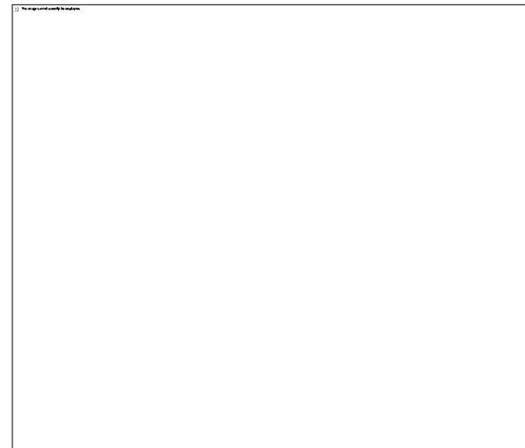
To Measure the weight of the samples



MAGNETIC STIRRER

Research:

To Blend the Liquid (polymer) and solid materials (Fillers).



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DEPARTMENT OF MECHATRONICS ENGINEERING

Research Lab Facilitates

HIGHLIGHTS OF THE DEPARTMENT

INDUSTRY SUPPORTED LABORATORY

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Total Cost – Rs. 48,93,376/-

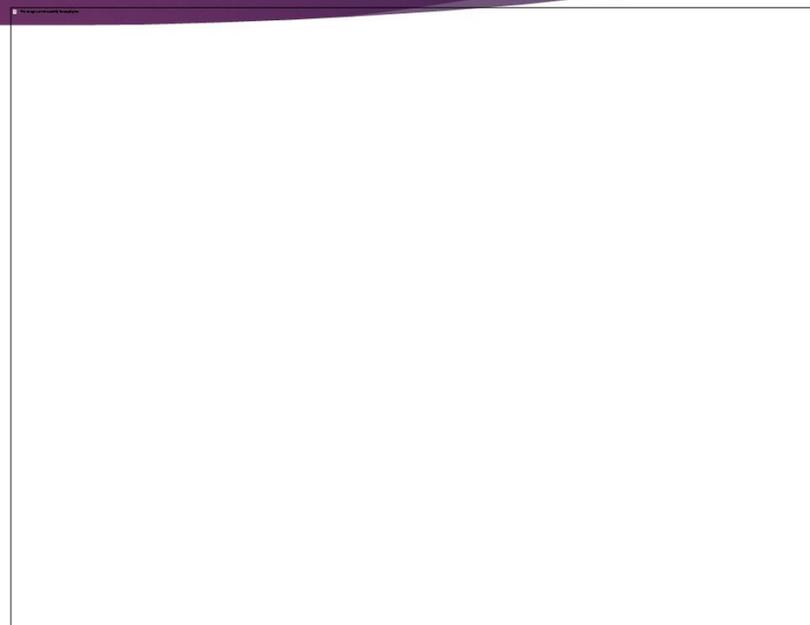
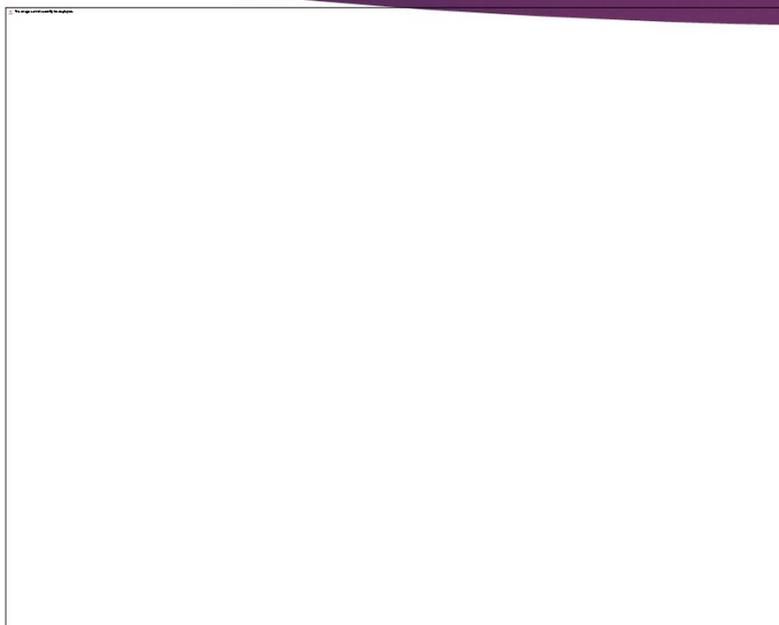
HIGHLIGHTS OF THE DEPARTMENT

PRODUCT DEVELOPMENT

88

**Automatic Pouch Folding
Machine**

**Oil Recovery System
from Under Weight Pouches**



Name of the Industry : V.V.V. & Sons Edible Oils Limited, Virudhunagar – 626 001

Total Amount : Rs. 2,43 ,670/-

HIGHLIGHTS OF THE DEPARTMENT

89

FACULTY CONTRIBUTION

- **One** of our faculty members got international certification by **SMC Pneumatics India Private Limited** in Pneumatics and Electro Pneumatics.
- **Two** of our faculty members were trained by **FESTO Controls Pvt. Ltd.**, in Pneumatics and Electro Pneumatics Automation with PLC
- **Two** of our faculty members were trained by **MSC Software Solutions** in **Multi Body Dynamics** using **ADAMS**
- **Four** of our faculty members were trained by **BOSCH Rexroth India Ltd.**, in **Industrial Hydraulics**

FACILITIES & TECHNICAL SUPPORT

90

TECHNICAL SUPPORT STAFF

CAD & CAM Lab

Software

- SOLIDWORKS
- CATIA V6
- Autodesk Products
- Master CAM
- ANSYS

Major Equipments

- 8085 Trainer Kit
- 8051 Trainer Kit
- Stepper Motor Controller
- Traffic Light Controller
- ADC & DAC
- Temperature Controller

FACILITIES & TECHNICAL SUPPORT

91

Major Equipments & Software

- 20HP Screw Compressor
- SMC Pneumatic Training Kit
- SMC Electro-Pneumatic Training Kit
- BOSCH Hydraulic Training Kit
- Automation Studio
- AutoSIM

Major Equipments & Software

- ADAMS
- 1 DOF ROBOT
- 2 DOF ROBOT
- 4 DOF ROBOT

E-Yantra Lab

Major Equipments

- PLC – AB1 Training Kit
- PLC – SIE3 Training Kit
- AC Motor Speed Control using PLC & VFD
- Process Control Station

- Sponsored by MoE under the National Mission on Education through ICT program.
- Better exposure to Embedded systems and Robotics Education



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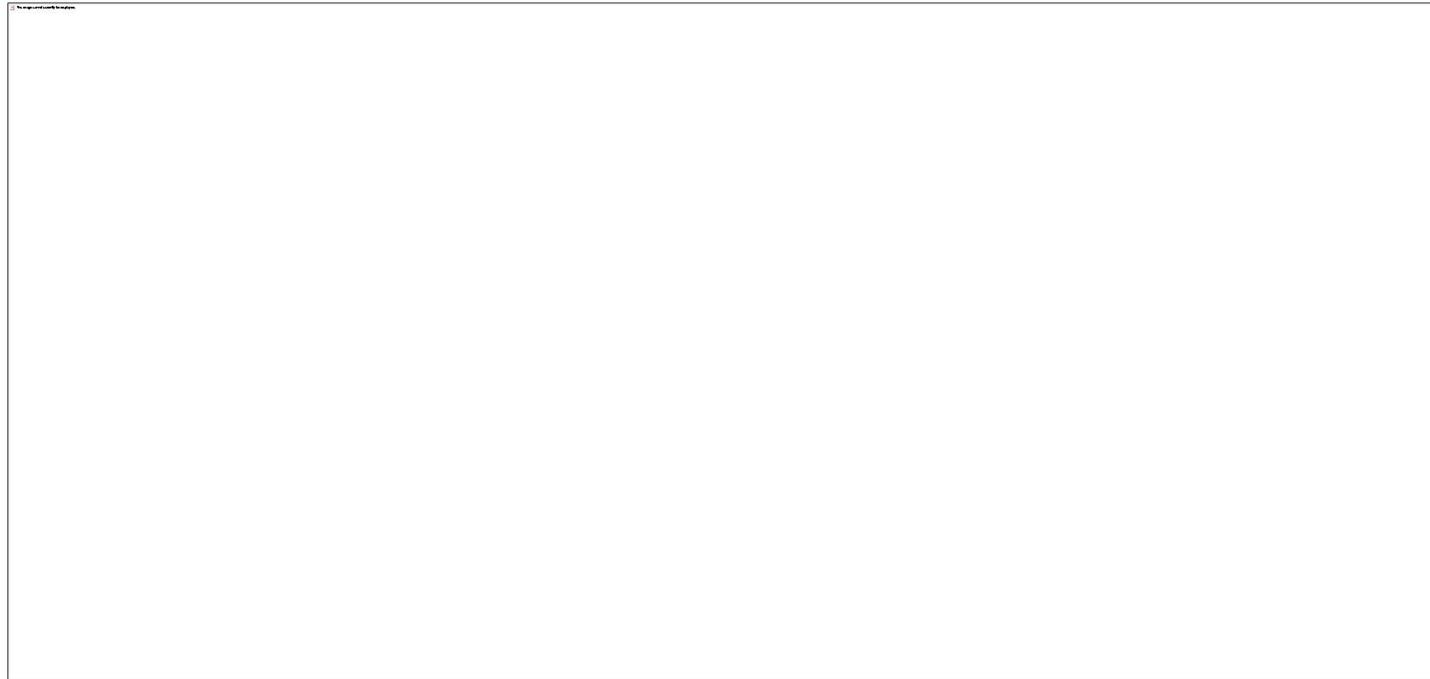
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DEPARTMENT OF PHYSICS

Research Lab Facilitates



BALL MILLING
(Make:EUROPAISCHE GEMEINSCHAFT
Model: Retsch-PM100)





MUFFLE FURNACE
(Make:Maxotherm Furnace
Model: 9599)





ULTRASONICATOR BATH

**(Make: Thermospectrum
Model: Transonic)**



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DEPARTMENT OF POLYMER TECHNOLOGY

Research Lab Facilitates



LIST OF LABORATORIES

- ▶ Polymer Chemistry Lab
- ▶ Polymer Processing Lab
- ▶ Polymer Testing Lab

POLYMER CHEMISTRY LAB

MAJOR EQUIPMENTS

- ▶ FTIR
- ▶ Flame Photometer
- ▶ UV Spectrophotometer

Research:

To Synthesis the polymeric materials, nano materials, nano composites

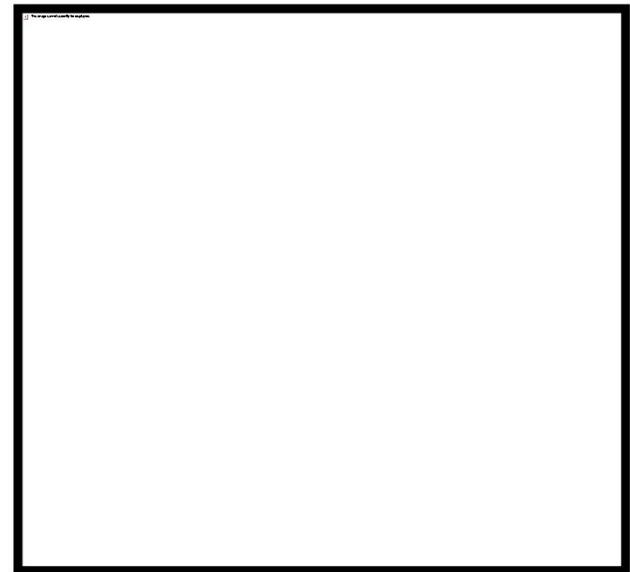
POLYMER PROCESSING LAB

MAJOR EQUIPMENTS

- Fully Automatic Injection Moulding Machine
- Blow Moulding Machine
- Compression Moulding Machine
- Extruder
- Two roll mill

Research:

The Synthesized polymeric materials, nano materials are converted into sheet form



POLYMER TESTING LAB

MAJOR EQUIPMENTS

- Thermo gravimetric Analyser
- Differential Scanning Calorimeter
- Universal Testing machine
- Melt Flow index
- Hardness Tester

Research:

To test the polymeric materials, composites as per ASTM standard

