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**PDEU** PANDIT  
DEENDAYAL  
ENERGY  
UNIVERSITY

Formerly Pandit Deendayal Petroleum University (PDPU)



# SCHOOL OF ENERGY TECHNOLOGY

## Department of Physics

### Name of Laboratory : B.Tech. Physics Lab

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## NAME OF EQUIPMENT :

**Newton's Ring**

## TECHNICAL SPECIFICATIONS :

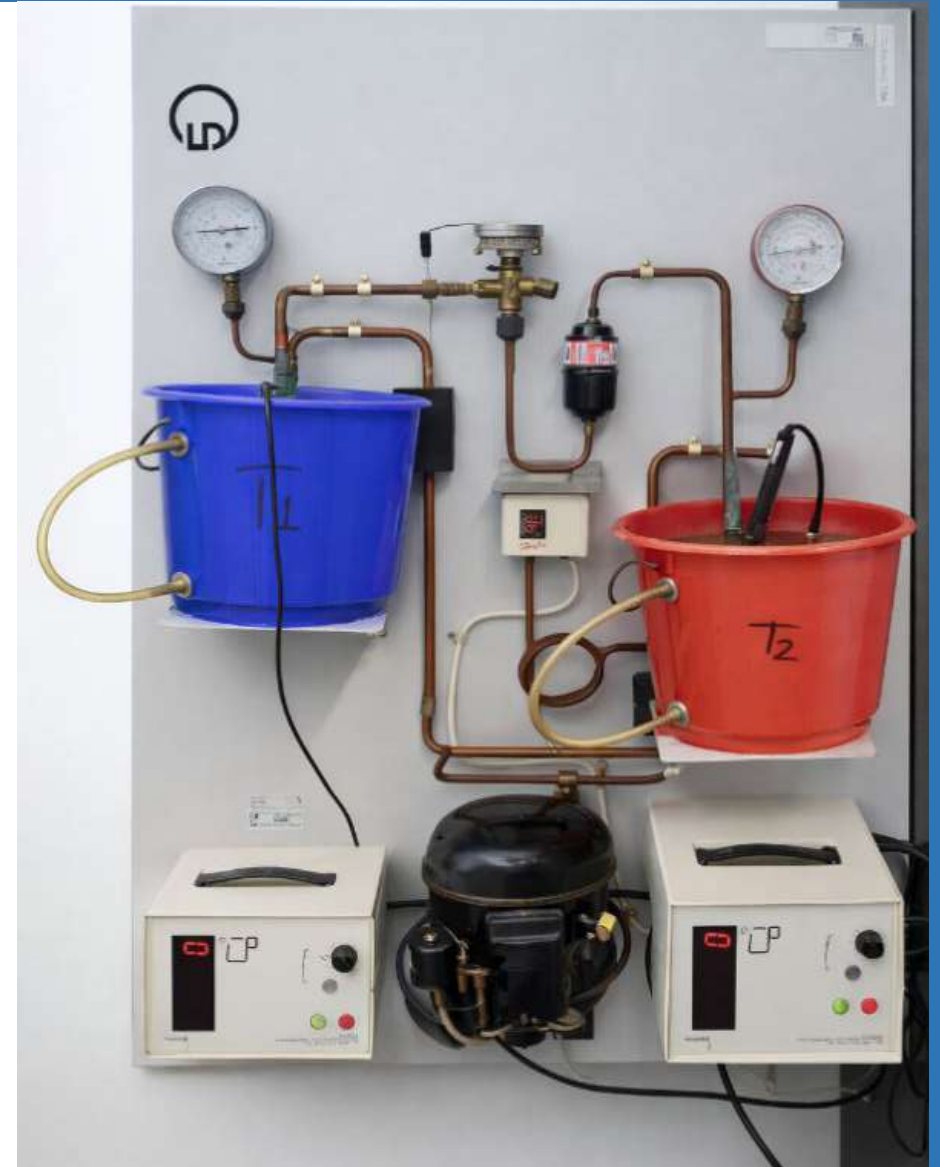
- **Linear motion** : 10 – 0 -10mm
- **Micrometer** : Vernier dial 100 div., LC 0.01mm
- **Plano convex** : Dia. 61.5mm, Glass, Focal length lens 200mm
- **Sodium source** : MS housing, 200 x 85mm (LxØ),slit(LxW) 20x16mm
- **Sodium bulb** : pin Type Socket 35W



## NAME OF EQUIPMENT : Heat Pump Experiments

### TECHNICAL SPECIFICATIONS :

- **Heat Pump** : Refrigerant :R134a
- **Joule & wattmeter** :  
Voltage measurement : DC:  $\pm 5/\pm 50/\pm 500$  mV,  $\pm 5/\pm 50/\pm 250$  V & AC :  $-/-/350$  mV, 3.5/35/250 V
- **Current measurement I** :  
DC:  $\pm 0.2/\pm 2/\pm 20$  mA,  
 $\pm 0.2/2/10$  A & AC: 0.14/1.4/14 mA, 0.14/1.4/10 A
- **Power measurement P**:  
 $\pm 10/\pm 100$   $\mu$ W,  $\pm 1/\pm 10/\pm 100$  mW,  
 $\pm 1/\pm 10/\pm 100$  W,  $\pm 1/\pm 2.5$  kW
- **Temperature probe** : NiCr-Ni
- Digital stop-watch

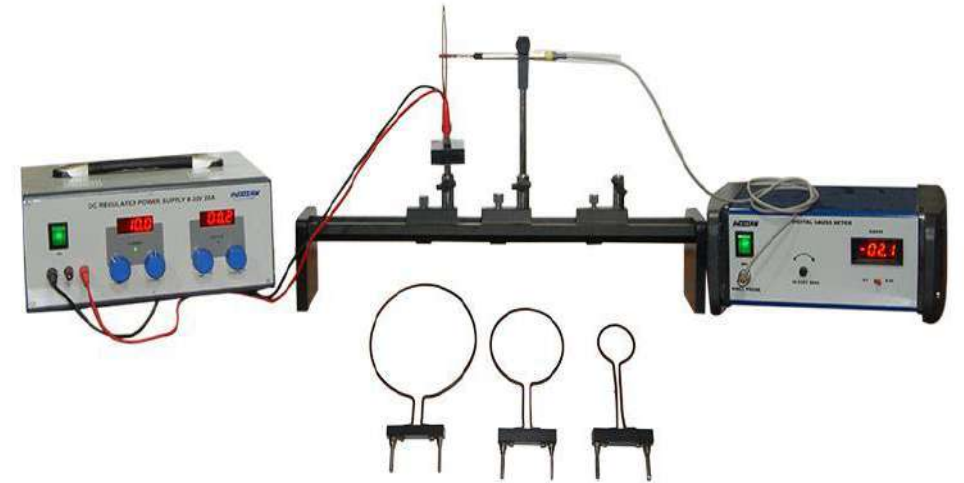


## NAME OF EQUIPMENT :

### Bio Savarts Law Apparatus

#### TECHNICAL SPECIFICATIONS :

- **Power Supply** : 0-30V DC, 0-20A, Input voltage 220V,  $\pm 5\%$ , 50Hz AC
- **Optical bench** : Length – 1 mtr.
- **Digital Gauss Meter** : Range 200 G & 2 k G, sensor In As
- **Transversal slider** : 25 – 0 – 25mm, LC 0.01mm



## NAME OF EQUIPMENT :

**Photo conductivity Kit**

## TECHNICAL SPECIFICATIONS :

- **Photo detector** : CdS LDR, Aperture 8-10mm
- **Polarizer / Analyzer** : Angle ( $0^\circ \pm 90^\circ$ ), Aperture 21mm dia
- **Light housing** : Aluminium, Lamp 12V, 21V
- **Power Supply** : Variable 0-16 Volt DC, Fixed 5V DC and Current 0-1 A (max.)



**NAME OF EQUIPMENT :**  
**E/M by Thomson Method**

**TECHNICAL SPECIFICATIONS :**

- **Cathode Ray Tube: Distance between Plates :  $d=1.4\text{cm}$**
- **Focusing Voltage : Variable 0 - 300V DC**
- **Deflection Voltage : Variable 0 - 50V**
- **Intensity Adjustment Voltage : Variable 0 - 60V DC**
- **Deflection magnetometer : 0 to  $90^\circ$**



## NAME OF EQUIPMENT :

**Optical Fiber Kit**

### TECHNICAL SPECIFICATIONS :

- **Fibre optics cable** : PMMA (core)
- **Source (LED)** : 660 & 850nm, SMA connector, power range 0 to 55 dbm, power supply +6V DC size 32 x 19 x 14mm
- **Detector** : Wavelength 660nm, SMA connector
- **Function generator** : Sine & square wave, frequency control & amplitude control, frequency selector switch (x10,x100 & x1000)





## NAME OF EQUIPMENT :

### Hall Effect Apparatus

#### TECHNICAL SPECIFICATIONS :

- **Power Supply** : 0-20V DC, 0-5 A, Voltage resolution 0.1V, Current Resolution 0.1 A
- **Digital Gauss Meter** : Range 2k & 20kG, Sensor In As
- **Electro magnet** : Coils 500 Turns, Current 7A (Max.), 4mm safety socket, Ferromagnetic “U” core, 150 x 130mm (LxH), 40 x 40mm cross section, Core L=150mm, 40x40mm cross section, Field Capacity 1T (Max.)
- **Sample** : p-type Ge Wafer, Size 6 x 7 x 0.5mm, Resistivity 1~ 10  $\Omega$  cm,
- **Current Source** : 0-19.99 mA DC, Accuracy 0.01 mA



## NAME OF EQUIPMENT :

Diffraction Of Light

## TECHNICAL SPECIFICATIONS :

- **Laser** : He-Ne Laser (632nm), current 4mA ~ 6mA
- **Optical bench** : Length – 1.5 mtr. with Scale, 4 point levelling
- **Screen** : Acrylic(translucent) 300 x 300 x 3mm
- **Slit Frame Size** : 50mm x 50mm, Width=0.06mm & Separation=0.20mm (Single, Double, Blade)
- **Diffraction grating** : 80 lines / mm, 300 lines / mm



## NAME OF EQUIPMENT :

**Thermal expansion of solids**

## TECHNICAL SPECIFICATIONS :

- **Metal Rods** : Aluminum, steel, brass
- Steam Generator
- **Measuring device** : Analog dial guage
- **Thermometer** : 0 to 100 degree



## NAME OF EQUIPMENT :

### Electrical Conductivity of Metal

#### TECHNICAL SPECIFICATIONS :

- Conductivity Rod :Cu/Al, size 420 x25.4mm (L x F)
- Power supply: Output Voltage 0-30V, Resolution 0.1V, Output Current 0-20 Amp
- Digital micro voltmeter : Range 19.999 mV – 1000 V



## NAME OF EQUIPMENT :

Digital Phosphor Oscilloscope

## TECHNICAL SPECIFICATIONS :

- **Make/Model** : Tektronix/ DPO2024
- 200 MHz bandwidth
- 4 Analog channels



**NAME OF EQUIPMENT :**  
**Function Generator**

**TECHNICAL SPECIFICATIONS :**

- **Make :** GW INSTEK
- **Model :** SFG 1013
- **Output Function :** Sine, Square, Triangle, TTL
- **Frequency Range(For Sine, Square) :** 0.1Hz ~ 3MHz
- **Power Source :** AC 240V,220V,110V 10%, 50/60Hz



**NAME OF EQUIPMENT :**  
**Arbitrary Function Generator**

**TECHNICAL SPECIFICATIONS :**

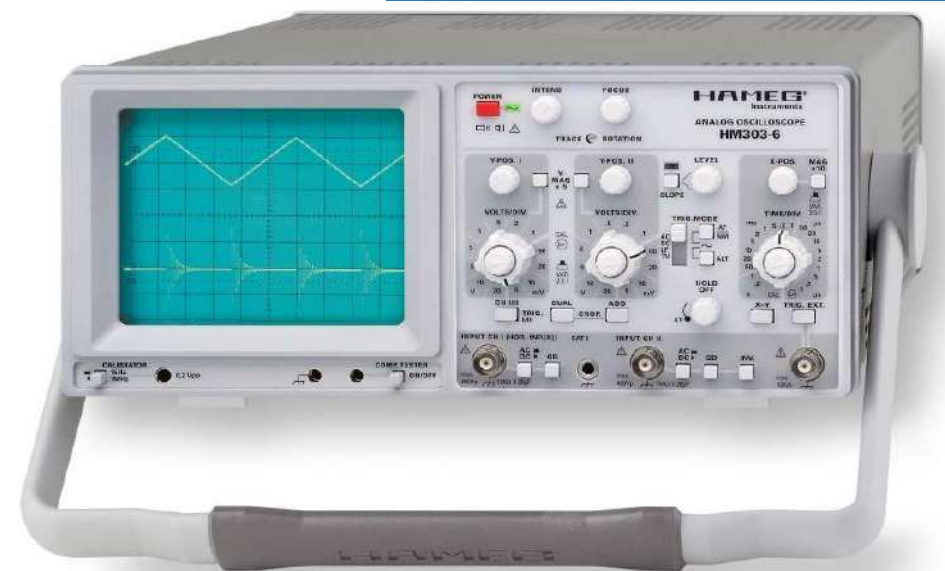
- **Make :** Tektronix
- **Model :** AFG1062
- Dual-channel
- 25 MHz or 60 MHz sine waveforms
- 12.5 MHz or 30 MHz square waveforms



**NAME OF EQUIPMENT :**  
**Analog Oscilloscope**

**TECHNICAL SPECIFICATIONS :**

- **Make :** HAMEG
- **Model :** HM 303-6
- 2 Channels with deflection coefficients of 1 mv-20 V/cm
- **Time Base** 0.2 s – 100 ns/cm, with X Magnification to 10 ns/cm
- Yt, XY and component-test modes



## NAME OF EQUIPMENT :

Power Supply

## TECHNICAL SPECIFICATIONS :

- **Make** : Indasaw
- **Range** : 2-12 V AC/DC
- 5 A AC/DC



**NAME OF EQUIPMENT :**  
**Signal Generator**

**TECHNICAL SPECIFICATIONS :**

- **Make :** Indasaw
- **Range :** 10Hz to 110 KHz in four decade ranges
- **Wave form :** Sine & Square
- **Output :** Continuously variable from 0-7V p-p,5W



## NAME OF EQUIPMENT :

DC Power Supply

## TECHNICAL SPECIFICATIONS :

- **Make** : Indosaw
- 0-20 V DC
- 5 A DC
- **Voltage resolution** : 0.1V
- **Current Resolution** : 0.1 A
- Display 3½ digit LED
- **Primary fuse** : 2 A



## NAME OF EQUIPMENT :

Digital Gauss Meter

## TECHNICAL SPECIFICATIONS :

- **Make** : Indasaw
- **Range** : 2k & 20kG
- **Resolution** : 1G & 10 G at 2k & 20k G
- Offset By Potentiometer to set ZERO



## NAME OF EQUIPMENT :

**DC Power Supply**

## TECHNICAL SPECIFICATIONS :

- **Make** : Indasaw
- **Range** : 0-30 v DC
- **Output Voltage1** : 0-30 V variable
- **Output Voltage2** : 12 V (fixed)
- **Output Voltage3** : 5 V (fixed)



## NAME OF EQUIPMENT :

Digital Storage Oscilloscope

## TECHNICAL SPECIFICATIONS :

- **Make** : Rohde- Schwarz
- **Model** : RTB2004
- **Channel** : 4 Analog, optional 16 Digital (MSO)
- **Bandwidth** : 70 MHz (standard), upgrades to 100/200/300 MHz
- **Sample Rate** : Up to 2.5 GSa/s (1.25 Gsa/s per channel)
- **Vertical Sensitivity**: 1 mV/div to 5 V/div

