





LCR meter

Name of the Research Lab	 
Advanced Materials Lab (X -301b)	
Name of the Equipment/Instrument	
LCR meter	
Manufacturer/Company	
Keysight	
Model No.	
E4980A	
Month/Year of Installation	
October 2019	
Source of Fund	List of Measurements/Methods
SRM University - AP	
Dielectric or Impedance spectroscopy: <ul style="list-style-type: none"> • Impedance-Phase (Z, theta) • Capacitance – Loss 	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr Pranab Mandal/9851406353/ pranab.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • Voltage: 50 mV – 3 V AC; DC +/-40 V • Source frequency Range: 20 Hz to 2 MHz 	


Powder X-ray Diffractometer

Name of the Research Lab	
X-ray diffractometer Lab	
Name of the Equipment/Instrument	
Powder X-ray diffractometer	
Manufacturer/Company	
Spectris Pte Ltd	
Model No.	
Empyrean	
Month/Year of Installation	
October 2019	
Source of Fund	
SRM University - AP	
List of Measurements/Methods	
X-ray diffraction experiments on Powder and thin film samples <ul style="list-style-type: none"> • Reflection and transmission mode 	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr Pranab Mandal/9851406353/ pranab.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • 2θ: 5 – 120 ° • Radiation: Cu - Kα ($\lambda = 1.54 \text{ \AA}$) 	


High-temperature furnace

Name of the Research Lab	
Ceramic synthesis Lab	
Name of the Equipment/Instrument	
High-temperature furnace - 1	
Manufacturer/Company	
ANTS Innovation Pvt Ltd	
Model No.	
MF1150	
Month/Year of Installation	
October 2019	
Source of Fund	List of Measurements/Methods
SRM University – AP	
Materials Synthesis <ul style="list-style-type: none"> • Solid state synthesis of oxide materials • Ashing 	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr Pranab Mandal/9851406353/ pranab.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • Max Temperature 1050C • Ramp rate: 5 – 10 °C/min 	


High-temperature Furnace

Name of the Research Lab	
Ceramic synthesis Lab	
Name of the Equipment/Instrument	
High-temperature furnace - 2	
Manufacturer/Company	
ANTS Innovation Pvt Ltd	
Model No.	
1200TF	
Month/Year of Installation	
October 2019	
Source of Fund	
SRM University – AP	
List of Measurements/Methods	
Materials Synthesis: <ul style="list-style-type: none"> • Solid state synthesis of oxide materials • Sintering or calcination under N₂/O₂ gas atmosphere 	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr Pranab Mandal/9851406353/ pranab.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • Max Temperature 1100 °C • Ramp rate: 5 – 10 °C/min 	


High-temperature Furnace

Name of the Research Lab	
Ceramic synthesis Lab	
Name of the Equipment/Instrument	
High-temperature furnace - 3	
Manufacturer/Company	
ANTS Innovation Pvt Ltd	
Model No.	
1400MF	
Month/Year of Installation	
October 2019	
Source of Fund	
SRM University – AP	
List of Measurements/Methods	
Materials Synthesis <ul style="list-style-type: none"> • Solid state synthesis of oxide materials 	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr Pranab Mandal/9851406353/ pranab.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • Max Temperature 1300 °C • Ramp rate: 5 – 10 °C/min 	


High-temperature furnace

Name of the Research Lab	
Ceramic synthesis Lab	
Name of the Equipment/Instrument	
High-temperature furnace - 4	
Manufacturer/Company	
Carbolite Gero Ltd	
Model No.	
CWF 13/05	
Month/Year of Installation	
July 2020	
Source of Fund	
DST, Govt. of India ECR/2018/001252	
List of Measurements/Methods	
Materials Synthesis <ul style="list-style-type: none"> • Solid state synthesis of oxide materials 	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr Pranab Mandal/9851406353/ pranab.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • Max Temperature 1200 °C • Ramp rate: 5 – 10 °C/min 	


Tubular furnace for measurement

Name of the Research Lab	
Advance materials lab (X -301 (b))	
Name of the Equipment/Instrument	
Tubular furnace for measurement	
Manufacturer/Company	
Custom Made	
Model No.	
ECR1252/EQ1	
Source of Fund	
DST, Govt. of India ECR/2018/001252	
List of Measurements/Methods	
Temperature dependence of <ul style="list-style-type: none"> • Impedance and dielectric permittivity (with LCR meter) • Pyroelectric current (with external SMU) 	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr Pranab Mandal/9851406353/ pranab.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • Custom made furnace and impedance probe with EM shielding • Fully interfaced using LABVIEW 	


Ferroelectric/ Piezoelectric Analyzer

Name of the Research Lab	
Advance materials lab (X -301 (b))	
Name of the Equipment/Instrument	
Ferroelectric/ Piezoelectric Analyzer	
Manufacturer/Company	
Radiant Technologies Inc.	
Model No.	
PLC21119-421	
Month/Year of Installation	
January 2020	
Source of Fund	
DST, Govt. of India ECR/2018/001252	
List of Measurements/Methods	
Ferroelectric and Piezoelectric Characterization of <ul style="list-style-type: none"> • Thin films • Ceramics and single crystals 	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr Pranab Mandal/9851406353/ pranab.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • Max voltage 100 V (internal) and 10 kV (external amplifier) • Frequency: 0.03 Hz – 5 kHz • Polarization – electric field (PE), PUND, strain-field measurement, leakage current etc 	


Low Temperature Probe Station

Name of the Research Lab	
Device Physics Laboratory	
Name of the Equipment/Instrument	
Low Temperature Probe Station	
Manufacturer/Company	
Janis Research Company, LLC, USA	
Model No.	
ST-LN-500	
Month/Year of Installation	
November 2020	
Source of Fund	
SRM University AP	
List of Measurements/Methods	
Variable temperature electrical measurements for MEMS, nanoscale electronics, superconductivity, ferroelectrics, material sciences, optics	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Sabyasachi Mukhopadhyay/ Dr. Jatis Kumar Dash/ 9851406353,7003239796/ sabyasachi.m, jatis.d@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • Open-cycle probe station with Temperature range from ~77 K to 475 K (liquid nitrogen) • Accommodates up to 2 in (51 mm) diameter wafers • Electrical measurements from DC to 67 GHz • Wide variety of inexpensive LF probe tips that are easy to replace • Very low triaxial probe arms leakage current of just a few fA • Non-contact, non-destructive Kelvin probes 	


Impedance Analyzer

Name of the Research Lab	
e-transport Laboratory	
Name of the Equipment/Instrument	
Impedance Analyzer	
Manufacturer/Company	
Wayne Kerr Electronics, UK	
Model No.	
6510B	
Month/Year of Installation	
November 2019	
Source of Fund	
DST, Govt. of India ECR/2017/001937	
List of Measurements/Methods	
AC Measurement Parameters: Impedance (Z); Phase Angle (θ); Capacitance (C); Dissipation Factor (D); Inductance (L); Quality Factor (Q); Resistance (R); Reactance (X); Conductance (G); Susceptance (B); Admittance (Y)	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Sabyasachi M /9494076194 / sabyasachi.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • Provides precise high frequency impedance measurements • Characterizes components from 20 Hz to 10 MHz • Offers excellent 0.05% basic measurement accuracy • Displays Polar and Complex plots 	

Sub-femtoamp Remote Source Meter

Name of the Research Lab	
e-transport Laboratory	
Name of the Equipment/Instrument	
Sub-femtoamp Remote Source Meter	
Manufacturer/Company	
Keithley	
Model No.	
6430	
Month/Year of Installation	
November 2020	
Source of Fund	
DST, Govt. of India	
ECR/2017/001937	
List of Measurements/Methods	
AC Voltage, AC Current, DC Voltage, DC Current, Resistance	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Sabyasachi M /9494076194 / sabyasachi.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • No. of Channels: 1Channels • Source Voltage Range: $\pm 200\text{mV}$ to $\pm 200\text{V}$ • Source Current Range: $\pm 1\text{pA}$ to $\pm 100\text{mA}$ • Resistance Measurement Range: 2 ohm to 20 Tohm 	

Source-Measurement Unit (SMU)

Name of the Research Lab	
Device Physics Laboratory	
Name of the Equipment/Instrument	
Source-Measurement Unit (SMU)	
Manufacturer/Company	
Keithley	
Model No.	
2636B	
Month/Year of Installation	
November 2019	
Source of Fund	
SRM University AP	
List of Measurements/Methods	
AC Voltage, AC Current, DC Voltage, DC Current, Resistance	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Sabyasachi M /9494076194 / sabyasachi.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • No. of Channels: 2 Channels • Source Voltage Range: $\pm 200\text{mV}$ to $\pm 40\text{V}$ • Source Current Range: $\pm 100\text{pA}$ to $\pm 100\text{mA}$ • Resistance Measurement Range: 2 ohm to 20 Gohm 	

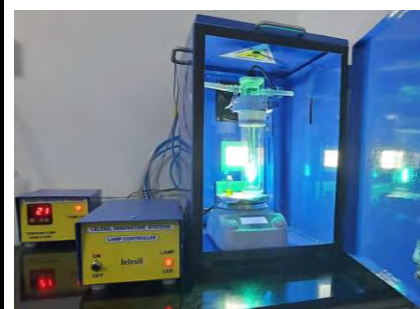
Potentiostat/Galvanostat

Name of the Research Lab
Science of Ions and Molecular Laboratory
Name of the Equipment/Instrument
Potentiostat/Galvanostat
Manufacturer/Company
Biologic, France
Model No.
SP150
Month/Year of Installation
December 2019
Source of Fund
DST-INSPIRE, Govt. of India (DST/INSPIRE/04/2017/001392)
List of Measurements/Methods
Electrochemistry, Fuel Cells, Battery Characterization, Solar-Cell characterization, Corrosion. DC and AC Measurement Parameters: Impedance (Z); Phase Angle (θ); and related parameters Cyclic Voltammetry, Chrono Amperometry.
Details of Faculty In-charge (Name, Contact Number, Email ID)
Dr. Mallikarjuna Rao M /73820 25117/mallikarjuna.m@srmmap.edu.in
Brief Description/Novelty of the Equipment
<ul style="list-style-type: none"> • Provides precise high frequency impedance measurements • Characterizes components from 10 μHz to 1 MHz • Offers excellent 0.05% basic measurement accuracy • Displays Polar and Complex plots




Photo Chemical Reactor


Name of the Research Lab
Science of Ions and Molecular Laboratory
Name of the Equipment/Instrument
Photo Chemical Reactor
Manufacturer/Company
Lelcil Pvt Ltd
Model No.
NA
Month/Year of Installation
December 2020
Source of Fund
DST-INSPIRE, Govt. of India (DST/INSPIRE/04/2017/001392).
List of Measurements/Methods
Photo Chemical reactions, such as catalysis, degradation.
Details of Faculty In-charge (Name, Contact Number, Email ID)
Dr. Mallikarjuna Rao M /73820 25117 mallikarjuna.m@srmmap.edu.in
Brief Description/Novelty of the Equipment
<ul style="list-style-type: none"> • Both UV and Visible (Hg Arc based) light sources (150 W each) available. • 300- and 500-ml volume capacity triple jacketed vessels are available.



Sputtering cum Thermal Evaporator Unit

Name of the Research Lab	
Device Physics Laboratory	
Name of the Equipment/Instrument	
Sputtering cum Thermal Evaporator Unit	
Manufacturer/Company	
EXCEL instruments, Pune	
Model No.	
NA	
Month/Year of Installation	
January 2020	
Source of Fund	List of Measurements/Methods Growth tool for Metallic and semiconducting thin films
SRM University AP	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Jatis Kumar Dash/9440389975/jatis.d@srmmap.edu.in	Brief Description/Novelty of the Equipment <ul style="list-style-type: none"> • Chamber type: SS chamber with front door and ports for turbo pump, vacuum gauges, viewing, gas inlet, Quartz crystal monitor, thermal sources and venting • Sputtering source: Water cooled DC magnetron Sputter source for 2" dia target with shutter • Thermal source: Water cooled Thermal source for boat/filament • Sample Holder: 1" dia sample capable of heating to 800 oC with PID programmable controller • Gas flow: Digital MFC (for standard gases) 0-100 SCCM with valve • Vacuum gauges: High vacuum gauge and pirani gauge with display • Pump: Turbo with rotary pump • Base pressure: ~ 10⁻⁶ Torr

HPCC- VENUS

Name of the Research Lab	
Computation Laboratory	
Name of the Equipment/Instrument	
HPCC- VENUS	
Manufacturer/Company	
Tyrone/ Camarero DS300TW-14R	
Model No.	
NA	
Month/Year of Installation	
January 2020	
Source of Fund	
SERB-DST, BRNS, DST	
List of Measurements/Methods	
<p>Vienna Ab-Initio Simulation Package (VASP) is a package for performing ab-initio quantum-mechanical molecular dynamics (MD) using pseudopotentials and a plane wave basis set.</p> <p>Quantum Espresso: It is based on density-functional theory, plane waves, and pseudopotentials. Ground State Calculation: Self-consistent total energies, forces, stresses; Several exchange-correlation functionals: from LDA to generalized-gradient corrections (PW91, PBE, B88-P86, BLYP) to meta-GGA, exact exchange (HF) and hybrid functionals (PBE0, B3LYP, HSE).</p>	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Prof. Ranjit Thapa/ Dr. Mahesh Kumar Ravva/9176296112/ ranjit.t@srmmap.edu.in / mahesh.r@srmmap.edu.in	

Brief Description/Novelty of the Equipment

- *Five node servers with total 200 cores, 2.18 TB RAM and storage in mater node of 12 TB*

Two Nodes: Each with Processor – Intel

Number of processors – 2

Processor Type – Xeon

Processor Model - E5-2697 V4

Processor Core – 18

Processor Speed – 2.3GHz

Chipset Type – Intel C612

Cache Per Processor - 45MB Level 3

Memory – 512 GB

Another Two Nodes: each with Processor – Intel

Number of processors – 2

Processor Model – Intel 6248R

Processor Core – 24

Processor Speed – 3GHz

Chipset Type – Intel C621

Cache Per Processor – 35.75MB

Memory – 384 GB

Another one Node Processor – Intel

Number of processors – 2

Processor Model – Intel 6226R

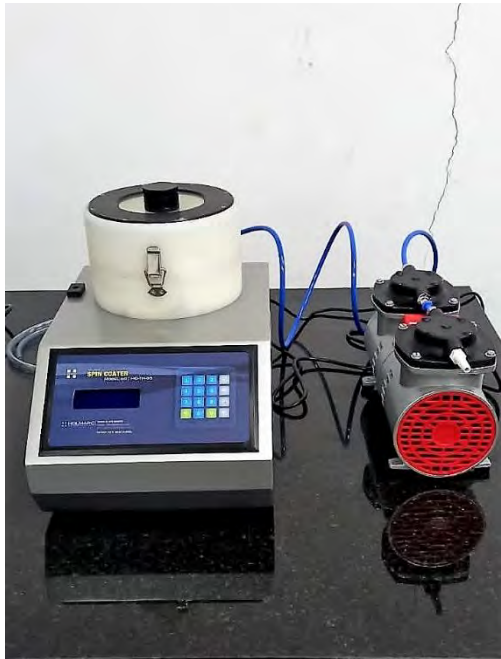
Processor Core – 16

Processor Speed – 2.9GHz


Cache Per Processor – 22MB

Memory – 384 GB

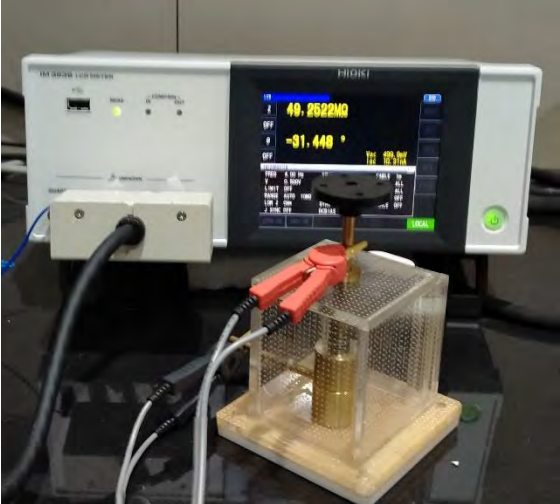
Spin Coating Unit

Name of the Research Lab	
Device Physics Lab	
Name of the Equipment/Instrument	
Spin Coating Unit	
Manufacturer/Company	
HOLMARC Opto-Mechatronics pvt. Ltd, India	
Model No.	
HO-TH-05	
Month/Year of Installation	
September 2021	
Source of Fund	List of Measurements/Methods Thin film Deposition through spin coat
SRM University AP	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Sabyasachi Mukhopadhyay /9563042194/ sabyasachi.m@srmmap.edu.in	Brief Description/Novelty of the Equipment Typical process of spin coating involves depositing a small puddle of fluid resin onto the centre of the substrate <ul style="list-style-type: none"> • Chuck diameters : 14mm, 22 mm, 36 mm (Outer diameter of the O ring) • Spinning speed – 60 to 9999 rpm • Transparent Safety Lid over the Working Chamber • Non-volatile Program Memory (up to 9) • Stand holder to hold pipette to dispense solution • Inlet and outlet for Inert Gas Purging, 6mm tubing


UV Ozone Cleaner

Name of the Research Lab	
Device Physics Lab	
Name of the Equipment/Instrument	
UV Ozone Cleaner	
Manufacturer/Company	
HOLMARC Opto-Mechatronics pvt. Ltd, India	
Model No.	
HO-TH-UVT150	
Month/Year of Installation	
September 2021	
Source of Fund	
SRM University AP	
List of Measurements/Methods	
Remove bio contaminants from the substrates	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Sabyasachi Mukhopadhyay / 9563042194/ sabyasachi.m@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
Removes the bio contaminants from the substrate <ul style="list-style-type: none"> • UV lamp type - High Ozone UV Lamp • UV lamp supply - 4000 V, 30 mA • Max substrate size - 150 mm x 150 mm • Duration - 1 - 99 sec / min / hr • With Oxygen inlet port, Ozone removal pump, LCD display unit, Sample temperature measurement feature, Buzzer for indication completion of cleaning, locking feature for locking sample feeding tray to avoid opening during operation. 	


LCR Meter

Name of the Research Lab	
Solid State Ionics Lab	
Name of the Equipment/Instrument	
LCR Meter	
Manufacturer/Company	
HIOKI, Japan	
Model No.	
IM3536	
Month/Year of Installation	
February 2021	
Source of Fund	
DST-SERB -SRG, Govt. of India SRG/2019/000767	
List of Measurements/Methods	
AC Measurement Parameters: Impedance (Z); Phase Angle (θ); Capacitance (C); Dielectric Constant (K); Inductance (L); Resistance (R); Reactance (X); Conductance (σ); Admittance (Y).	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Laxminarayana Patro / 9668686358 laxminarayana.p@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • Provides precise high frequency impedance measurements • Frequency range - 4 Hz to 8 MHz • Displays Complex Impedance plots 	

LCR Meter : HT Set-up

Name of the Research Lab	
Solid State Ionics Lab	
Name of the Equipment/Instrument	
LCR Meter : HT Set-up	
Manufacturer/Company	
Marine India	
Model No.	
RT-500C	
Month/Year of Installation	
March 2021	
Source of Fund	
DST-SERB -SRG, Govt. of India SRG/2019/000767	
List of Measurements/Methods	
High temperature impedance measurement	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Laxminarayana Patro / 9668686358 laxminarayana.p@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> • Interfaced with the LCR meter • Automatic stored data at different temperatures 	


Tube Furnace

Name of the Research Lab	
Solid State Ionics Lab	
Name of the Equipment/Instrument	
Tube Furnace	
Manufacturer/Company	
Ants Lab	
Model No.	
1200C	
Month/Year of Installation	
November 2020	
Source of Fund	
DST-SERB-SRG, Govt. of India SRG/2019/000767	
List of Measurements/Methods	
High temperature calcination and sintering of materials	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Laxminarayana Patro / 9668686358 /laxminarayana.p@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> ● Maximum temperature up to 1200 °C ● Vacuum can be created ● Gas Flow during heating can be done 	

Vacuum Oven

Name of the Research Lab	
Solid State Ionics Lab	
Name of the Equipment/Instrument	
Vacuum Oven	
Manufacturer/Company	
InLab Equipments	
Model No.	
NA	
Month/Year of Installation	
July 2021	
Source of Fund	
SRM University – AP	
List of Measurements/Methods	
Drying of samples	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Laxminarayana Patro / 9668686358	
laxminarayana.p@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> ● Max Temperature upto 150 °C ● Vacuum can be created 	

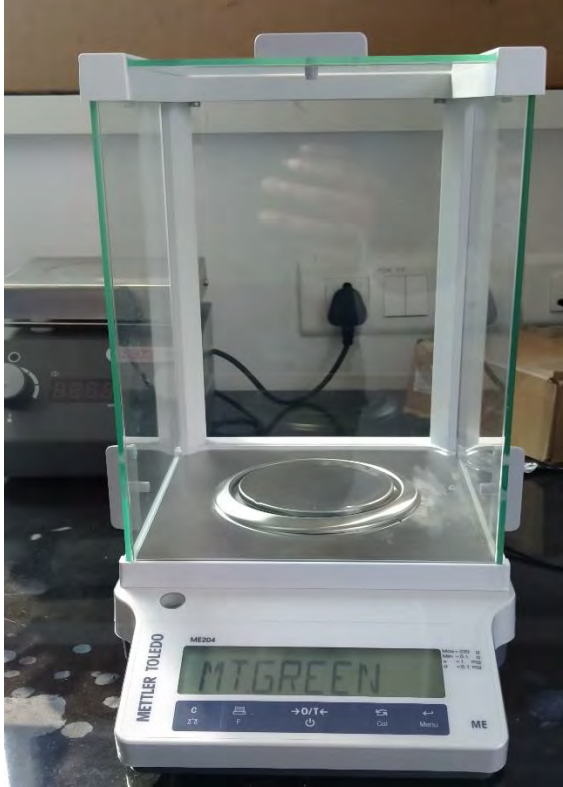
Hydraulic Press

Name of the Research Lab	
Solid State Ionics Lab	
Name of the Equipment/Instrument	
Hydraulic Press	
Manufacturer/Company	
Technosearch Instruments	
Model No.	
M20	
Month/Year of Installation	
March 2021	
Source of Fund	
DST- SERB-SRG SRG/2019/000767	
List of Measurements/Methods	
Pellets of different sizes can be made	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Laxminarayana Patro / 9668686358 /laxminarayana.p@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> ● Pellets from 8 - 13 mm diameters can be made ● High pressure upto 15 tons/cm² can be applied 	


Planetary Ball Mill

Name of the Research Lab	
Solid State Ionics Lab	
Name of the Equipment/Instrument	
Planetary Ball Mill	
Manufacturer/Company	
Insmart Systems	
Model No.	
MBM07	
Month/Year of Installation	
September 2020	
Source of Fund	
DST –SERB-SRG SRG/2019/000767	
List of Measurements/Methods	
Synthesis of Nano-materials/powders	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Laxminarayana Patro / 9668686358 /laxminarayana.p@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> ● Prepare powders of very fine size ● Synthesis of solid electrolytes 	

Density Measurement set-up

Name of the Research Lab	
Solid State Ionics Lab	
Name of the Equipment/Instrument	
Density Measurement set-up	
Manufacturer/Company	
Mettler Toledo	
Model No.	
ME204	
Month/Year of Installation	
July/2021	
Source of Fund	
SRM University AP	
List of Research/Tests that can be done	
Weighing of chemicals	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Laxminarayana Patro / 9668686358 laxminarayana.p@srmmap.edu.in	
Brief Description/Novelty of the Equipment	
<ul style="list-style-type: none"> ● High precision up to 0.1mg ● Density measurement kit included 	

Deposition furnace (LPCVD)

Name of the Research Lab	
Device Physics Laboratory	
Name of the Equipment/Instrument	
Deposition furnace (LPCVD)	
Manufacturer/Company	
Carbolite	
Model No.	
Carbolite	
Month/Year of Installation	
February 2020	
Source of Fund	
SRM University AP	
List of Measurements/Methods	
Details of Faculty In-charge (Name, Contact Number, Email ID)	
Dr. Jatis Kumar Dash / 9440389975 /jatis.d@srmmap.edu.in	
Brief Description/Novelty of the Equipment	