

DST Funded 7-day training program on
Exploring the research innovations in sciences with Hands on Experience
June 24th and 25th , 2022

Under
Synergistic Training program Utilizing the scientific and Technological Infrastructure(STUTI)



DEPARTMENT OF PHYSICS
Government College (Autonomous)
Rajamahendravaram, A.P- 533105

About STUTI Workshop

The government college (A)-Rajahmundry school of Sciences organized a Seven Day DST STUTI workshop in Collaboration with GITAM university, Vishakhapatnam from 20-26th June 2022. The objectives of this workshop are

- Providing hands-on experience on various scientific equipment available
- Inculcate research instinct and temper among students and research scholars
- Ability to represent data presentation techniques for publications

In this seven days program, the Department of Physics has taken very active role in arranging talks of Eminent Resource persons. It also involved in exposing and giving hands on experience to all the participants towards various research equipment such as UV Visible Spectro Photometer, Fourier Transform IR, Plank's constant, Hall effect, Electron Spin Resonance and LASER related Experiments etc.

This program is limited to only 30 participants especially PG students and Research scholars from various institutions. The purpose of this limitation is to have one and one interaction and individual hands on experience

Brochure

ABOUT COLLEGE

Government College (A)-Rajahmundry is established in 1853 and it is first oldest government college in Andhra Pradesh. In early 19th century the government college Rajahmundry is one of the three graded colleges in Madras Presidency. The college was conferred autonomous status in 2000. Recently the college was re-accredited in Revised Accreditation Framework by NAAC A+ with 3.38/4.00 CGPA. The college is conferred with the status of college with potential for excellence (CPE) in 2016 by UGC. The college has received Rs. 80 lakhs from DST-FIST to strengthen teaching and research facilities in all science departments. At present the college is offering 53 UG programs and 14 PG level programs. The college caters the education needs of nearly 7000 students at UG&PG levels besides offering doctoral degrees from 9 Research Centres.

ABOUT SCHOOL OF SCIENCES

The School of Sciences at Govt. College (A)-Rajahmundry strives to guide students to find cutting-edge solutions to real-world problems by creating positive impact in chemistry, physics, biological sciences and earth sciences. The School of Sciences works together, to develop better crops to feed people, understand the effects of pollution and climate change on various ecosystems, and also how modern life affects the human genomes' functions. The innovative teaching methods, depth of research activity, and state-of-the-art facilities in the college are that elevate this School of Sciences into a centre of excellence. At the same time, it forges extensive partnerships with external networks, giving students an opportunity to develop an inquisitive research mind-set, while acquiring practical skills, and field techniques, to prepare them for a flourishing and bright future. The School of Science, GCRIJ has funded equipment sponsored by DST -FIST with F. No's SR/FST/College-346/2016.

ABOUT CENTRAL INSTRUMENTATION LABORATORY (CIL)

The CIL was established during 2019 as a National facility in the Government College (A)-Rajahmundry with financial support from DST under FIST grants to strengthen Teaching and Research facilities in all Science departments for a period of 5 years. As many as 34 scientific equipment were installed to help PG students, research scholars and faculty members to pursue their research studies and are optimally utilized by them. A score of research papers were published using this National facility.

ABOUT WORKSHOP

The proposed workshop 'Synergistic Training program Utilizing the Scientific and Technological Infrastructure' (STUTI) is intended to build human resource and its knowledge capacity through open access S&T Infrastructure across the country. As a complement to the various schemes of DST funding for expansion of R&D Infrastructure at academic institutions, STUTI scheme envisions a hands-on training program and sensitization of the state-of-the-art equipment among stake holders particularly the students.

The main objective of the training program is to introduce diversified areas of research in different sciences to impart hands on training on related R&D facilities to PG students, Research scholars, industry persons and faculty members which will be useful to carry out research in their fields of interest.

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Dr. Pola Bhaskar IAS
Commissioner, Collegiate Education, AP

Patron:
Dr R David Kumar
Joint Director of Collegiate Education & Principal
Govt. College (A) Rajahmundry


Co Patron:
Sri. K. Anjeyulu
Principal In-Charge

Convener:
Dr. B Mallikarjuna
DST-FIST Coordinator


STUTI Program Coordinator:
Prof. Balla Srinivasa Prasad,
GITAM Deemed to be University, Visakhapatnam.

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Organizing Committee Members
All faculty members of school of sciences



DST Funded 7-Day Training Program EXPLORING THE RESEARCH INNOVATIONS IN SCIENCES WITH HANDS ON EXPERIENCE-2022 (ERISHE-2022) JUNE 20th-26th, 2022 under STUTI Program-



School of Sciences,
Government College (A), NAAC A+(CGPA):
Rajahmundry, East Godavari Dt,
In collaboration with



GITAM Institute of Technology
GITAM Deemed to be University
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STUTI Program Coordinator:
Prof. Balla Srinivasa Prasad,
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OBJECTIVES OF THE PROGRAMME:

- Providing hands on experience to the stakeholders on various scientific equipment available
- Expose participants to the concept of *learning by doing*
- Inculcate research instinct and temper among students and research scholars
- Make them understand Data presentation techniques for publications

HANDS ON EXPERIENCE EQUIPMENTS

Fourier transform Infrared Spectrometer
UV-Visible spectrophotometer
Rotary Evaporator with vacuum pump and Chiller
Icematic

Fume Hood
Hot air oven

Electric Weighing Balance
Magnetic Stirrers
Magnetic Stirrers with hot plate
Digital Muffle Furnace

Digital pH meters

Digital Thermostat Water Bath
UV Chamber
Heating Mantles
Hall Effect

Electron Spin Resonance

Lattice Dynamics

30 MHZ Dual Trance CRO
He-Ne Laser

Planks Constant

Orbital Shaking Incubator

Ultra Sonicator
Laminar Air Flow Chamber
Poly Acrylamide Gel Electrophoresis & Agarose Gel Electrophoresis

Phase Contrast Microscope with Digital Camera
High speed refrigerated centrifuge 20000 rpm
UV Transilluminator

ELISA reader
Incubator 90Lit
HAS Student Microscope

Medical Microscope

CH 20i Image Capturing Microscope
Petrological Microscope



Electron Spin Resonance



30MHz Dual Tracer



Lattice Dynamics



Hal Effect



FTIR Spectroscopy



UV Spectroscopy



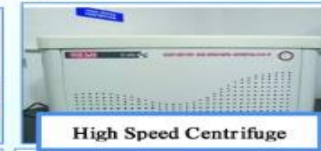
Rotovac



Fume Hood



O.S incubator



High Speed Centrifuge



Image Capturing Microscope



Elisa Reader



Digital Muffle furnace



PAGE

welcome to

DELEGATES & PARTICIPANTS

DST Funded 7-Day Training Program on
EXPLORING THE RESEARCH INNOVATIONS IN SCIENCES WITH HANDS ON EXPERIENCE - 2022
JUNE 24th-25th - 2022
Under **STUTI** Program

RESOURCE PERSONS



Sri V. Nataraju,
scientific officer-H,
BARC, Mumbai.



Dr. K. Ramachandra Rao,
principal,
GDC, Chodavaram.



Dr. Pratap Kollu,
University of Hyderabad,
Hyderabad.



Dr. Senthil Kumar Pandian,
Scientist,
SSN college of engineering,
Chennai.

organized by

DEPARTMENT OF PHYSICS

Government College (A), NAAC A+ (CGPA:3.38/4.00)

In Collaboration with



DAY 1

Session 1: A talk by Sri Nataraju Vogirala , Scientific Officer-H from BARC

Title of the talk: **Nuclear Research opportunities**

Date & Time: 24/06/2022 10am

Venue: Mana TV Room

No. of participants: 56

Sri Nataraju Vogirala , scientific officer H from BARC , Mumbai, has given an interesting talk on research in the area of Nuclear physics

and various research institutions where this Nuclear research is undertaking and had good interaction with students. We are Glad to say that he is the alumni of this college from physics department



DAY 1

Session 2: A talk by Dr. Ramachandra Rao K, Principal ,GDC Chodavaram

Title of the talk: **Nano Materials and Environmental Applications**

Date & Time: 24/06/2022 & 11:30am

Venue: Mana TV room

No. Participants : 67

Dr. Ramachandra Rao K is working as Principal and professor in physics and acted as a Research supervisor at GDC, Chodavaram. He is an eminent scientist in the area of crystal growth and Nano science. His talk on the Nano material and its applications to various fields is quite interesting and motivated the participants. He even showed the many daily life examples and also motivated the students towards research. He clarified many students queries in a simple way. Also explained the research work going on under his guidance at the GC(A) Rajahmundry



DAY 2

Session 1: A talk by Dr. Muthu Senthil Pandian, Scientist, SR Institution, Chennai

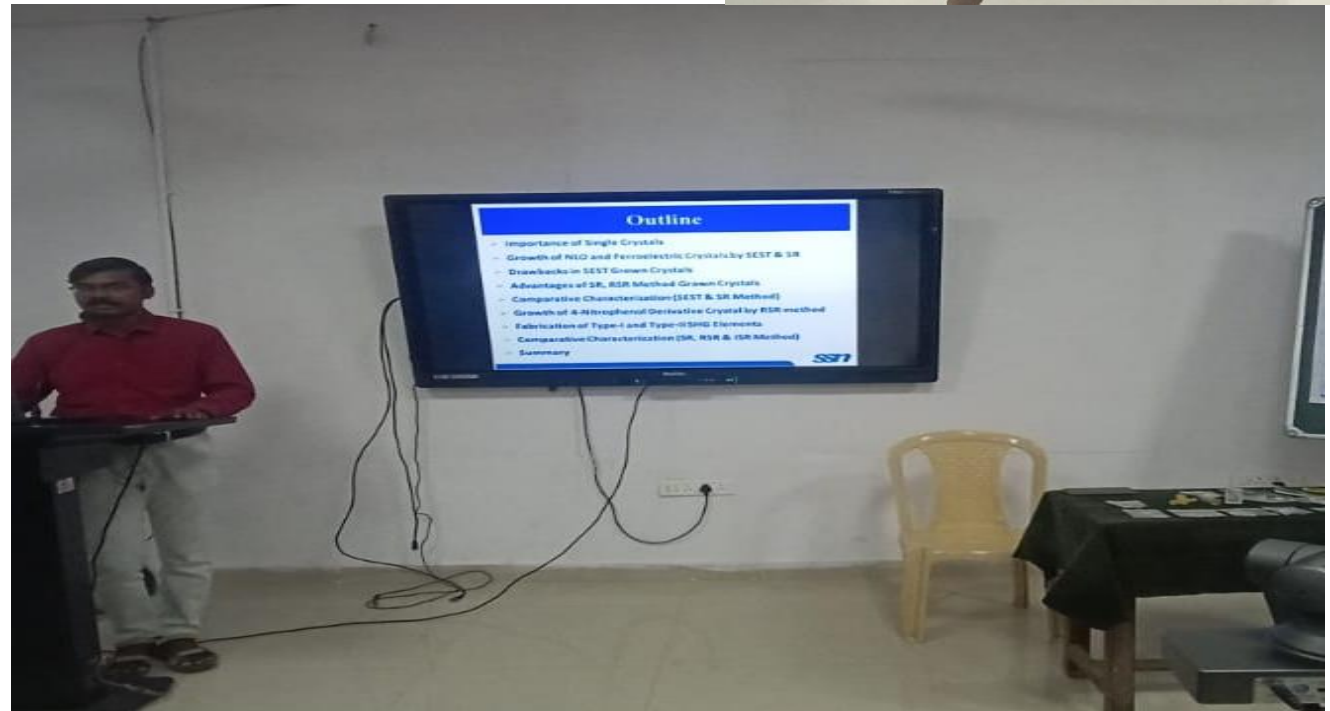
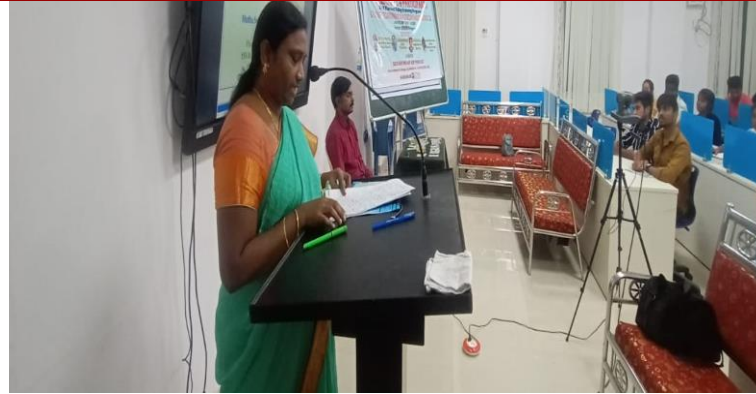
Title of the talk: **Crystal Growth Applications**

Date & Time: 25/06/2022 10am

Venue: Mana TV Room

No. Participants : 62

Dr. Senthil Pandian is an eminent scientist in the area of crystal growth. His talk on the crystal growth and its applications to various fields is quite interesting and motivated the participants. He even showed the various crystals which are developed in their institution and explained characterization techniques.



DAY 2

Session 2: A talk by Dr. Pratap Kollu, Assistant Professor, HCU,Hyd.



Title of the talk: **Energy Storage Devices**

Date& Time: 25/06/2022 11:30 am

Venue: Mana Tv Room

- No. of participants: 56



Dr. Pratap Kollu is an assistant Professor at Centre for Advanced Studies in Electronics , Science and Technology, HCU. He is an eminent personality who has publications in 80 international peer reviewed journals. His research area include design and fabrication of magnetic sensors which has wide applications in Navigation and Bio sensors. He has given a good talk on Energy Storage Devices such as LI ion batteries and LI-Cd and Ni batteries etc. The participants are very much inspired by knowing the various applications of these batteries and research work going on in this field



Day 1

Hands on Session : UV Photo Spectrometer and FTIR

- Principle: When UV light interact with matter and causes transition of electrons, it gives an absorption spectrum that identifies the compound in the sample
- Ultra Violet-visible spectrometry is very useful to characterize and analyse the organic compounds and metal complexes.
- All the students and scholars gave their feedback on these techniques and expressed their happiness in doing characterization of various sample available in nano lab
- Groupwise explanation was done to give more access to the students



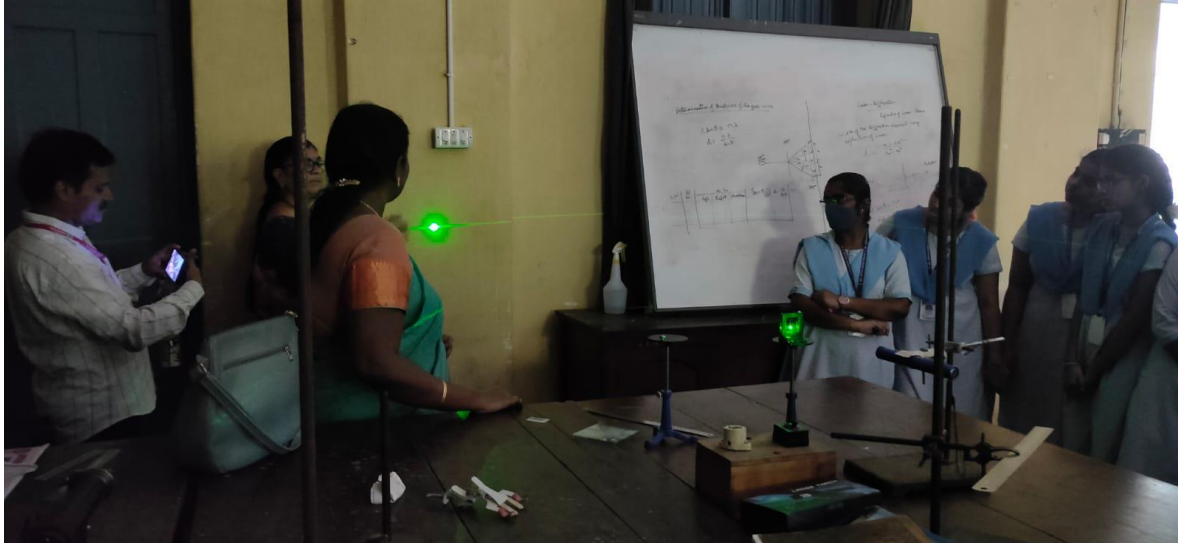


FTIR

Hands on Experience

- “Fourier Transform Infra Red” Spectroscopy is used in identification of compounds in a sample of mixture.
- Principle : When IR radiation pass through sample, different molecules with their different structures produce different spectra. This spectra can be used to distinguish among the molecules



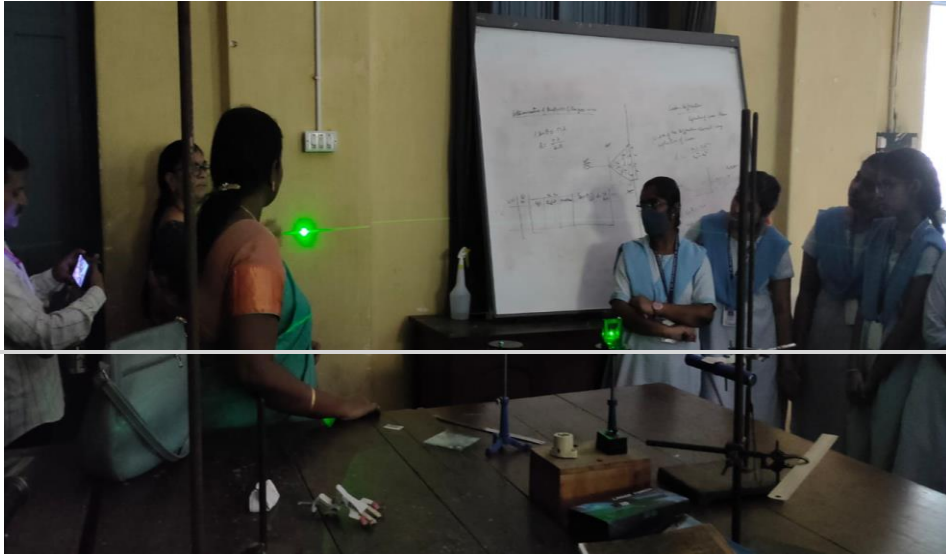


Day 2

Hands on Session : Hall Effect, ESR, Plank's Constant and LASER

Day 2

Hands on Session : Hall Effect, ESR, Plank's Constant and LASER



Day 2

Certificate distribution



భౌతికశాస్త్ర ప్రయోగాలపై విద్యార్థులకు శిక్షణ

దేవీచాక్: స్థానిక ప్రభుత్వ ఆర్ట్స్ కళాశాలలో జరుగుతున్న స్తుతి కార్యక్రమంలో భాగంగా విద్యార్థులకు భౌతిక శాస్త్రానికి సంబంధించిన ప్రయోగాలపై శిక్షణ ఇచ్చారు. ఉదయం ఎస్ఎస్ఎన్ ఇంజనీరింగ్ కళాశాల, తమిళనాడుకు చెందిన పరిశోధన శాస్త్రవేత్త ముత్తు సెంథిల్ పాండియన్... పరికరాల తయారీలో ఏక స్పటికాల అభివృద్ధి, వాటి లక్షణాలు, పరిశ్రమల్లో వాటి వినియోగం గురించి వివరించారు. హైదరాబాద్ సెంట్రల్ విశ్వవిద్యాలయం సహాయ ఆచార్యులు ప్రతాప్ కొల్లు, కళాశాల బాధ్య ప్రిన్సిపల్ కె. ఆంజనేయులు తదితరులు పాల్గొన్నారు.