

Report On

DST STUTI Program Funded 7-Day Training Program on “MATERIAL CHARACTERIZATION, MODELLING AND FINITE ELEMENT ANALYSIS”

Date: 22nd – 28th August 2022

Venue: Gokaraju Rangaraju Institute of Engineering and Technology, Hyderabad, Telangana State- 500090.

The inauguration of DST Funded 7-Day Training Program on “MATERIAL CHARACTERIZATION, MODELLING AND FINITE ELEMENT ANALYSIS” from 22nd to 28th August 2022, organised at Gokaraju Rangaraju Institute of Engineering and Technology, Hyderabad, Telangana State- 500090, in collaboration with GITAM Deemed to be University, VISAKHAPATNAM under STUTI Program-2021 (DST/RND/STUTI/2021/18) took place on 22nd August at 9:30 am.

INAUGURATION

Chief guests Dr. Jandhyala N Murthy, Director GRIET, Hyderabad; Principal of GRIET Dr. J Praveen. Dr. B. Tanya, HOD-ME, GRIET; Dr. K. Satyanarayana, Program coordinator, GRIET, STUTI program coordinator, and Dr. Balla Srinivasa Prasad from GITAM Deemed to be University; inaugurated the event by addressing the participants. Dr. J Praveen, Principal of GRIET, gave a brief about the research facilities available at GRIET, Hyderabad and congratulated the organisers for their initiative. The event was graced by participants from various engineering colleges throughout Karnataka, Tamil Nadu, West Bengal, Orissa, Maharashtra, Andhra Pradesh and Telangana, and the management and faculty members of GRIET.



Figure 1: Inaugural of the DST Funded 7-Day Training Program on “Material Characterization, Modelling and Finite Element Analysis” on 22nd August 2022.

DAY-1, 22nd AUGUST 2022:

TECHNICAL SESSION:

The first-day session focused on “*Finite element modelling and analysis of Composite material structures*” was taken by **Dr. P. Ravinder Reddy**, Professor, CBIT Hyderabad. He lectured on the importance of Finite element modelling.



Figure 3: Session by Dr. P. Ravinder Reddy on Finite element modelling

HANDS-ON SESSION:

Later in the afternoon, the hands-on session was carried out by **Dr. K. Satyanarayana**, Associate Professor, GRIET Hyderabad, on the “*Friction measurement test rig*”. The session taught the participants how to measure the friction of two materials providing hands-on experience.



Figure 4: Training session on Friction measurement test rig

DAY-2, 23rd AUGUST 2022:

TECHNICAL SESSION:

On day 2, the session started with “*Material testing and characterisation for sheet metal forming processes*” by **Dr. Nitin R. Kotkunde**, Assistant Professor, BITS Hyderabad, focused on lecturing on how materials are tested and characterised for sheet metal forming processes.



Figure 5: Session by Dr. Nitin R. Kotkunde

HANDS-ON SESSION:

In the afternoon session after lunch, **Dr. K. Satyanarayana**, Associate Professor, GRIET, conducted a hands-on practical session on _ BISS Equipment SR/S3/MERC/0129/2012 & CRG/2020/001450. The participants were allowed to learn how to use static & dynamic mechanical testing machines practically.



Figure 6: Training session on BISS Equipment SR/S3/MERC/0129/2012

DAY-3, 24th AUGUST 2022:

TECHNICAL SESSION:

On day three, **Dr. A K Singh**, Professor, GRIET and an expert, delivered a session on **“Material Characterisation by Scanning Electron Microscopy”**. He discussed the importance of Scanning Electron Microscopy in daily life and how it can solve complex problems efficiently.



Figure 7: Session delivered by Dr. A K Singh, Professor, GRIET

HANDS-ON SESSION:

Later in the afternoon session, the practical hands-on sessions were conducted on the operation of ‘SEM Equipment SR/FST/College-029/2017’ by Dr. K. Satyanarayana, Associate Professor GRIET.

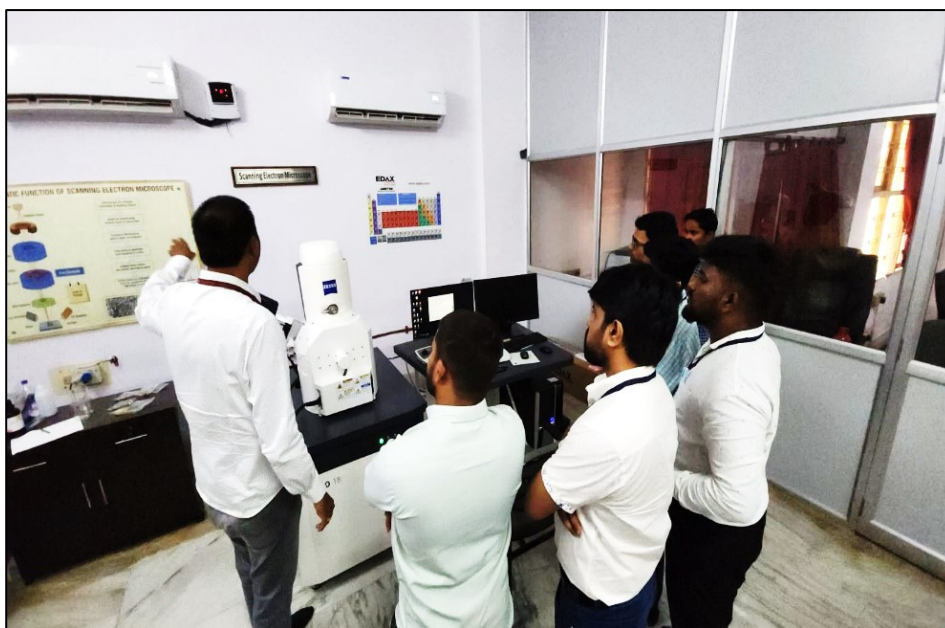


Figure 8: Practical session on SEM Equipment SR/FST/College-029/2017.

DAY-4, 25th AUGUST 2022:

TECHNICAL SESSION:

On day four, **Dr. V. Krishna, Scientist 'E', ARCI Hyderabad**, gave a presentation on **“Surface Engineering for Life Enhancement of Aerospace Applications”**. He explained the importance of the processing of metals and engineered surfaces.



Figure 9: Session delivered by Dr. V. Krishna Scientist 'E', ARCI Hyderabad

HANDS-ON SESSION:

In the afternoon session, **Dr. L. Rama Krishna, Scientist 'G', ARCI Hyderabad**, focused on training participants in **“Processing & Characterization of Engineered surfaces”**. The session continued with a hands-on training session with Scanning Electron Microscope by an expert **Dr. K. Satyanarayana**.



Figure 10: Practical sessions on Scanning Electron Microscope

DAY-5, 26th AUGUST 2022:

VISIT ARCI:

On the fourth day of class, all the participants visited the **International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI)**, established during the year 1996-97, is an autonomous Research and Development Centre of the Department of Science and Technology (DST), main campus at Hyderabad. **Dr. K. Satyanarayana**, Associate Professor, GRIET and Dr. Balla Srinivasa Prasad, GITAM Deemed to be university, Visakhapatnam, coordinated the participants to the ARCI.



Figure 11: Industrial visit to ARCI

DAY-6, 27TH AUGUST 2022:

TECHNICAL SESSION:

On day 6, **T.K. Nandy, DMRI**, delivered a lecture on ***“Microstructure and mechanical properties in Titanium Alloys”***. He explained how microstructures of titanium alloys change with varying temperatures.



Figure 13: Session by T.K. Nandy, DMRI, Hyderabad

HANDS-ON SESSION:

Later in the afternoon, **Dr. K. Satyanarayana**, Associate Professor, GRIET, demonstrated how to use EDAX Equipment SR/FST/College-029/2017. He explained why it is essential and how it can be operated. The participants could operate the equipment at the end of the session.

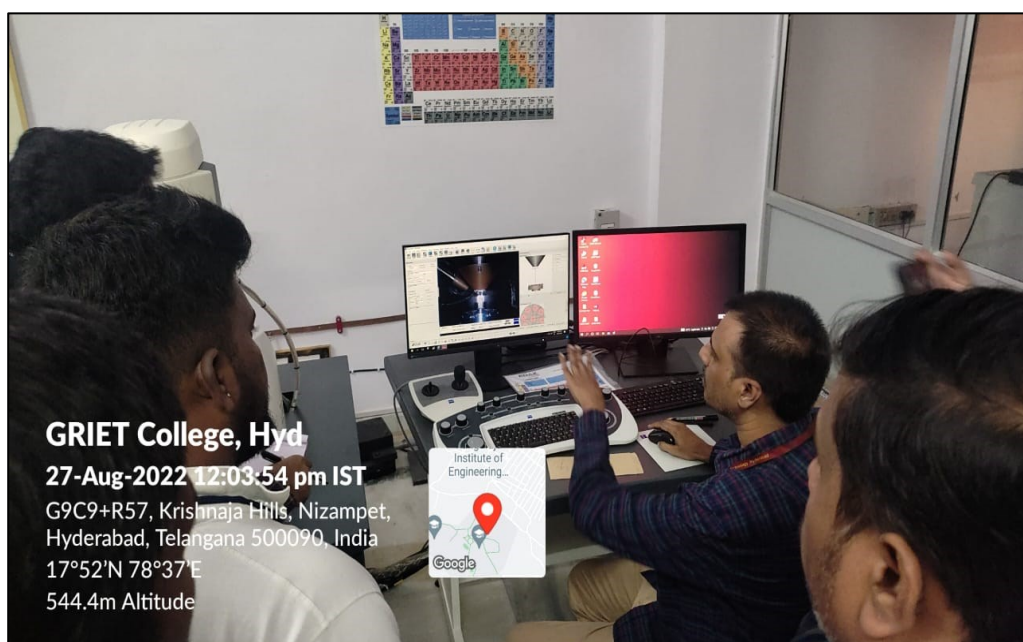


Figure 14: Hands-on practical session on EDAX Equipment SR/FST/College-029/2017

DAY-7, 28TH AUGUST 2022:

TECHNICAL SESSION:

On day 7, **Dr. T Suresh Kumar, Professor, GRIET**, delivered a presentation on "**Characterization of Solar Cells**".



Figure 15: Session delivered by Dr. T Suresh Kumar, Professor

HANDS-ON SESSION:

In the afternoon, Dr. T Suresh Kumar, Professor, GRIET, gave a hands-on experience on Core scan SR/FST/College-029/2017. The participants were trained to use the equipment at the end of the session.



Figure 16: Hands-on live demonstration of the Core scan by Dr. T Suresh Kumar, Professor, GRIET

Distribution of Certificates to participants:



Figure 17: Distribution of certificates to the Participants

Dr. B S Prasad, the STUTI program coordinator and Dr. Suresh Kumar Kolli, GITAM Deemed to be university, congratulated the participants on completing the seven-day training program. Dr. Jandhyala N Murthy, Director, GRIET, Dr. J Praveen, Principal, GRIET, and Dr. B. Tanya, HOD-ME, GRIET, congratulated the participants and certificates were distributed to each participant.

VOTE OF THANKS

They are thankful to Dr. Jandhyala N Murthy, Director, GRIET. Principal of GRIET Dr. J Praveen. Dr. B. Tanya, HOD-ME, GRIET, and all faculty members for their hard work in making this program a success. Dr. K. Satyanarayana, Program coordinator, GRIET and STUTI program coordinator Prof. Balla Srinivas Prasad, and Dr. K. Suresh Kumar, GITAM, Visakhapatnam, congratulated all the participants on completing the seven-day training. The workshop concluded with the national anthem. All the participants dispersed after the group photo session.



Figure 18: Group photo of the participants (30) who attended the 7-day workshop from 22nd – 28th August 2022 at GRIET, Hyderabad, Telangana.

Regards,
Dr Balla Srinivasa Prasad
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