

### **Report on staff development programme**

#### ***"Microscopy"***

***On 19<sup>th</sup> November, 2022***

***Organized by***

***Micromachining Research Centre association with Indian Welding Society (IWS)***

"Metallography is the science that describes the constitution and structures of metals by using microscopy. Metallography is used in almost all stages during the lifetime of a component, from the initial materials development to production, manufacturing process control and even failure analysis when required. Good metallographic techniques are essential to obtaining accurate results in the analyses. Which make "microscopy" show enormous potential in the fields of medicine, aerospace, nuclear, petrochemical industries etc. The objectives are as listed below.

- To describe about the concepts of material characterization in materials mechanisms which will make the staff to understand the science behind the process and nature behavior of the material.
- To intimate the need of analyzing the phases present in the material characterization.
- To gain knowledge on optical microscope usage and its utility.

With this objective, a staff development program on "Microscopy" was organized in the department of mechanical engineering on 19<sup>th</sup> November 2022. Dr. S. Ragu Nathan, Associate Professor, Mechanical Engineering Department, S.V.E.C organized a staff development program on "Microscopy" in which I explained the concepts of material characterization, types, mechanisms, metallurgical concepts, and phase transformation occurring during loading operations, phase transformations during



specimen preparation as well as the current importance in various application by using microscopy. Moreover, I have highlighted the need and growth made in microscopy studies, which refers to the application of microscopes to study various materials and surfaces, is one of the principal methods of material characterization and scientific research by and large. Microscopes employ a wide range of different methods to generate magnified images of materials and surfaces. Finally, the program was concluded by exploring the applications and future scope in material characterization employable to various industries.


The microscope specifications are Meiji Techno IM7500 Series Inverted Bright field/Dark field and simple Polarizing 12V/ 50W Metallurgical Microscope have an ergonomic slim triangular shaped design that saves bench space to maximize efficiency and offers ultimate stability with its cast aluminum alloy frame. This is the most rugged Inverted Microscope from Japan.



**One day staff development programme delivered by Dr. S. Ragu Nathan.**

In this program, gave awareness to the staff members with real time applications in the area of microstructure characterization of materials and weldments in future technology. Finally, empathized the need and understanding of microstrural studies of materials and usage of optical microscope.

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