

Instruments covered for training:

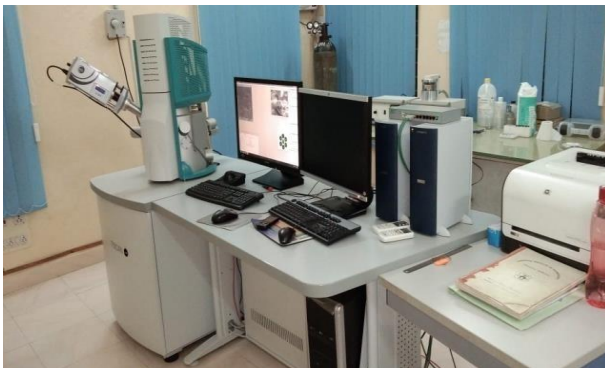
- ❖ Creep fatigue crack growth (CFCG) testing systems
- ❖ X-ray diffraction unit (XRD)
- ❖ Servo-hydraulic fatigue test system
- ❖ Scanning Electron Microscope (SEM)
- ❖ Dynamic Mechanical Analyzer (DMA)
- ❖ Inductively coupled plasma - optical emission spectrometry (ICP-OES)
- ❖ Universal Testing Machine (UTM)

Inductively Coupled Plasma Optical-Emission spectroscopy

Make: Agilent Technologies

Model: 700 series

Applications: This technique is used for quantitative and qualitative determination of elements present in the materials.



Scanning Electron Microscope (SEM)

Make: TESCAN

Model: VEGA3 LMU

Applications: To investigate and image surface topography and microstructures of samples (solid and powder) at high magnification.

X-Ray Diffraction (XRD)

Make: Panalytical

Model: X-pert powder

Applications: Powder XRD equipment can be used for the characterization of powder samples for the phase analysis, identifying crystalline phases and orientation and crystallographic information. This equipment can also capture data from the bulk polycrystalline samples after the required sample preparation. Structural properties such as Lattice parameters, Strain, Grain size, texture and epitaxy can be determined from the data. The XRD diffraction data will be provided to the user and the user can investigate the above materials' structure by analyzing the data.



Dynamic Mechanical Analyser (DMA)

Make: Metravib

Model: DMA25

Applications: This instrument is capable of determining glass and secondary transitions of polymers; determination of storage, loss and Young's modulus; damping coefficient and perform creep studies.

Universal Testing Machine (UTM)

Make: Jinan Testing Equipment Corporation

Model: WDW-100S

Applications: It can perform many standard tensile and compression tests on materials, components and structures. Physical and mechanical attributes of metals, alloys, finished solid products, etc., can be studied. Aforesaid tests can also be performed under sub-zero (-100 °C) and high-temperature (up to 1000 °C) conditions.





Creep fatigue crack growth (CFCG) testing systems

Make: Zwick Roell

Model: Kappa 100SS-CF

Applications: These systems are capable of performing tests such as Creep Fatigue Crack Growth (ASTM E 2760), Creep Crack Growth (ASTM E 1457), Fatigue Crack Growth Rate (ASTM E 647), Low Cycle Fatigue (ASTM E 606), Creep Fatigue Interaction (ASTM E 2714), Fracture Toughness (ASTM E 1820) in addition to the conventional Tension/Compression tests.

Servo-hydraulic fatigue test system

Make: BISS, Bangalore

Model: UT-04-0100 MEDIAN 100

Applications: This universal testing system is capable for performing tests for fracture toughness (ASTM E1820) and Fatigue Crack Growth Rate (ASTM E 647) measurements.



