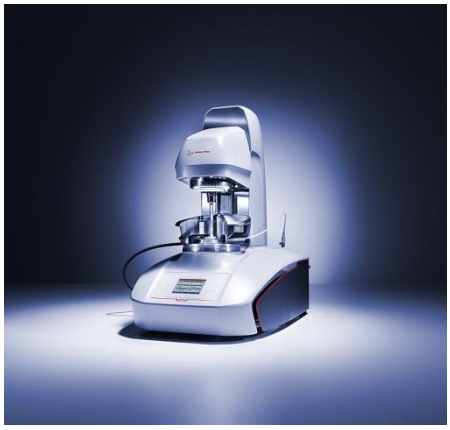
Department of Chemical Engineering, NIT Calicut

RHEOMETEER

Photo of Instrument: 	
Instrument Name	RHEOMETER
Instrument Model & Serial No.	MCR 72
Instrument Make	Anton Paar
Category of Instrument	Analytical Instrument
Description of Instrument	Rheometers are essential tools for understanding the viscoelastic behaviour of materials, which refers to their ability to exhibit both viscous (flowing) and elastic (spring-like) properties. A rheometer is a scientific instrument used to measure the flow and deformation properties of materials, particularly fluids and soft solids. It is commonly employed in the field of rheology, which is the study of the flow and deformation of materials under the influence of stress or strain.
Instrument Technical Description and Major Specifications (This Specifications Limited to Major 5)	**Rotational or Oscillatory Measurements:** Rheometers can apply rotational or oscillatory forces to a sample and measure the resulting stress, strain, or deformation. The choice between these modes depends on the nature of the material being tested. **Shear and Extensional Rheology:** Rheometers can assess a material's response to shear forces (deformation parallel to the applied force) or extensional forces (deformation perpendicular to the applied force). This helps in understanding how materials behave under different types of stress.

	Controlled Conditions: Rheometers typically operate under controlled conditions such as temperature, pressure, and humidity to simulate real-world environments and to ensure accurate and reproducible measurements. **Various Attachments:** Rheometers often come with a variety of interchangeable fixtures and attachments, allowing researchers to tailor experiments to specific needs. Common fixtures include concentric cylinders, parallel plates, and cone-and-plate geometries. **Viscosity and Elasticity Measurements:** Rheometers can provide information on a material's viscosity (resistance to flow) and elasticity (ability to return to its original shape after deformation). This information is crucial for understanding a material's rheological profile.
Application of Instrument (Limited to Major 4 or 5)	Polymer processing, food and beverage manufacturing, pharmaceuticals, cosmetics, and the study of biological materials. They are used for quality control, process optimization, and material characterization.
Type of Sample Required for Analysis/Testing (Quantity, Pre-Preparation, State etc.) **Guidelines for Sample Submission – User Instructions**	Sample should be liquid.
Types of Analysis/Testing (Quantity, Pre-Preparation, State etc.) **Guidelines for Sample Submission – User Instructions**	
Faculty In-Charge Name / Email / Contact	Prof. Shiny Joseph shiny@nitc.ac.in 04952285404
Technical Staff Name / Email / Contact	Muhammed Munaver Muhammedmunaver@nitc.ac.in 04952285484
Location of Instrument	Instrumentation Lab
Other Details	

Department of Chemical Engineering, NIT Calicut

User Charges

S.NO.	Type of Analysis/Testing	Internal - within Department of NITC	Internal - Other Departments NITC	External Academic Educational Institutes	National Labs	Industry
1			500	1000	1000	2000

Slot Booking and Payment Work Flow:

- Discuss the slot availability with the technical staff in the instrumentation lab of chemical engineering department.
- Collect the request form.
- Payment should be at the accounts section of the institute.
- Get the request form signed from the faculty in charge.
- Submit the request form and samples in the instrumentation lab.