

Universal Testing Machine (UTM)

Photo of Instrument:



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| Instrument Name | Universal Testing Machine (UTM) |
| Instrument Model & Serial No. | AG-X plus 10kN |
| Instrument Make | SHIMADZU |
| Category of Instrument | Mechanical Testing equipment's |
| Description of Instrument | These machines are used to test the mechanical properties of materials. |
| Instrument Technical Description and Major Specifications (This Specifications Limited to Major 5) | Technical Description *Frame: UTM typically consists of a sturdy frame that houses the components responsible for applying and measuring forces. *Load Cell: It incorporates a load cell or force transducer to measure the applied force accurately. *Crosshead: The crosshead moves vertically to apply tension or compression to the test specimen. *Control System: It includes a control system that regulates the test parameters such as load rate, displacement rate, and test duration. |

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| | <p>Specifications</p> <p>*Test Modes: They support various test modes such as tension, compression, tear, and shear testing.</p> <p>*Accuracy: UTMs provide precise and accurate measurements of force, displacement, and strain.</p> <p>*Speed Range: They offer adjustable speed ranges for applying force or displacement at different rates, typically from very slow to high speeds.</p> <p>*Safety Features: UTMs include safety features such as overload protection, emergency stop buttons, and interlocks to ensure operator safety.</p> |
| <p>Application of Instrument (Limited to Major 4 or 5)</p> | <ul style="list-style-type: none"> * Material Testing * Quality Control * Research and Development * Failure Analysis. * Quality Assurance |
| <p>Type of Sample Required for Analysis/Testing (Quantity, Pre-Preparation, State etc.) Guidelines for Sample Submission – User Instructions</p> | <p>Solid samples such as Metallic sample, Polymeric samples, Composite samples, Ceramic samples and Textile samples.</p> <p>For each sample 3 specimens are required for testing.</p> <p>Dimensions: Length, width, thickness, and diameter are common dimensions specified for samples.</p> <p>Alignment and Orientation: For tests such as tensile or compression tests, the alignment and orientation of the sample are crucial.</p> |
| <p>Types of Analysis/Testing</p> | <p>Tensile Testing, Compression Testing, Shear Testing, Peel Testing, Tear Testing and Fatigue Testing</p> |
| <p>Faculty In-Charge Name / Email / Contact</p> | <p>Prof. Shiny Joseph shiny@nitc.ac.in 04952285404</p> |
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| Location of Instrument | Instrumentation Lab |
| Other Details | |

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 | Tensile Testing | | 250 | 500 | 500 | 1000 |
| 2 | Compression Testing | | 250 | 500 | 500 | 1000 |

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.