

**X-RAY DIFFRACTOMETER**

**Photo of Instrument:**



<b>Instrument Name</b>	X-ray diffractometer
<b>Instrument Model &amp; Serial No.</b>	SmartLab SE & BD72000676-01
<b>Instrument Make</b>	Rigaku
<b>Category of Instrument</b>	Characterization and Testing
<b>Description of Instrument</b>	Used for the structural analysis of materials. Highly versatile multipurpose X-ray diffractometer with built-in intelligent guidance
<b>Instrument Technical Description and Major Specifications</b> (This Specifications Limited to Major 5)	X-ray source: Cu (Wavelength: 1.54 Å) Operation mode: theta-theta Scanning range: up to 160° Software for operation, data acquisition and processing Temperature range: RT to 1200 °C
<b>Application of Instrument</b> (Limited to Major 4 or 5)	Crystal structure analysis of powder samples Grazing incidence XRD for polycrystalline and epitaxial thin films Reflectivity, rocking curve, and RSM analysis in thin films SAXS analysis

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	High temperature XRD analysis
<b>Type of Sample Required for Analysis / Testing (Quantity, Pre-Preparation, State etc.)</b> <b>Guidelines for Sample Submission – User Instructions</b>	Powder (75 mg), Thin film (area $\geq 1 \text{ cm}^2$ )
<b>Types of Analysis / Testing</b>	Powder- normal scan Powder- slow scan GIXRD SAXS RSM Rocking curve High temperature XRD XRR
<b>Faculty In-Charge Name / Email / Contact</b>	Dr. Maneesh Chandran  Email: <a href="mailto:maneesh@nitc.ac.in">maneesh@nitc.ac.in</a>
<b>Technical Staff Name / Email / Contact</b>	Anjali C Email: <a href="mailto:anjalic@nitc.ac.in">anjalic@nitc.ac.in</a>
<b>Location of Instrument</b>	Room 110-A, Dept. of Physics
<b>Other Details</b>	

### User Charges:

S.NO.	Type of Analysis / Testing	Internal - within Department of NITC	Internal - Other Departments NITC	External Academic Educational Institutes	National R&D Labs	Industry
1	Powder- normal scan	175 per sample	175 per sample	400 per sample	600 per sample	1000 per sample
2	Powder- slow scan	200 per sample	200 per sample	600 per sample	900 per sample	1500 per sample
3	Thin film (GIXRD)	400 per sample	400 per sample	800 per sample	1200 per sample	2000 per sample
4	Temperature variant XRD	400 per sample*	400 per sample*	800 per sample\$	1200 per sample\$	2000 per sample\$
5	XRR	400 per sample	400 per sample	800 per sample	1200 per sample	2000 per sample
6	SAXS	400 per sample	400 per sample	800 per sample	1200 per sample	2000 per sample
7	RSM	1000 per sample	1000 per sample	2000 per sample	3000 per sample	5000 per sample
8	Rocking curve	1000 per sample	1000 per sample	2000 per sample	3000 per sample	5000 per sample

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- \*The base price is for one sample at one temperature and additional Rs. 200/- for each temperature variations.
- #An additional charge of Rs. 200 per hour, if the experiments exceed 4 h.
- \$The base price is for one sample at one temperature and additional Rs. 500/- for each temperature variations.

### **Slot Booking and Payment Work Flow:**