

**Central Instrumentation Laboratory  
Central University of Punjab, Bathinda**

**RATE LIST FOR OUTSIDE SAMPLES TO BE ANALYSED USING HI-END  
ANALYTICAL EQUIPMENT OF CIL**

Sr. No.	Instrument Facility	Type of Service	Industry / Private R&D Charges (in Rs.)	Academic Charges (in Rs.)	Institutes under MoU Charges (in Rs.)	Internal Users Projects/ PhD Scholar* Charges (in Rs.)		
1	NMR (600MHz) <sup>\$</sup>	<sup>1</sup> H (without solvent)	400/-	240/-	200/-	20/-		
		<sup>13</sup> C (without solvent) (per hour/per sample whichever is earlier)	500/-	375/-	300/-	50/-		
		2D COSY, NOESY, HSQC, etc. (per hour/per sample whichever is earlier)	1000/-	750/-	600/-	100/-		
		Variable Temperature (per hour/per sample whichever is earlier)	2000/-	1500/-	1200/-	200/-		
		Other Nuclei <sup>31</sup> P, <sup>19</sup> F, <sup>11</sup> B, <sup>29</sup> Si, etc. (per hour/per sample whichever is earlier)	500/-	375/-	300/-	50/-		
		D <sub>2</sub> O Exchange (per hour/per sample whichever is earlier)	600/-	450/-	360/-	60/-		
		<b>Solvent in deuterated form#</b>						
		CdCl <sub>3</sub>	50/-					
		Methanol-D <sub>4</sub>	500/-					
		Acetonitrile-d <sub>3</sub>	500/-					
		Deuterium oxide (D <sub>2</sub> O)	300/-					
		Acetone-d <sub>6</sub>	400/-					
		DMSO-d <sub>6</sub>	250/-					
<p><b># Subject to availability of the solvent</b></p> <ul style="list-style-type: none"> <li>✓ The solvent charges are subject to revision depending upon the procurement price of the same.</li> <li>✓ In case any other (deuterated) solvent is needed, the user is advised to make arrangements to procure on their own and bring/send them to us for use of their samples. Per sample a minimum of around 0.7 mL of solvent is required.</li> </ul>								
2	Powdered XRD	Powder Sample (per sample)	500/-	375/-	300/-	50/-		
		Any specific requirement such as low temp., high temp. and thin film (per hour)	2500/-	1875/-	1500/-	250/-		

**Central Instrumentation Laboratory  
Central University of Punjab, Bathinda**

		of Instrument time)				
3	<b>Gas Chromatography-Mass Spectroscopy (GC-MS)</b>	GC-MS in EI mode including Library search upto 3 peaks (per Sample)	500/-	375/-	300/-	50/-
		MS in EI mode with Direct Insertion Probe Analysis (DIP) (per Sample)	500/-	375/-	300/-	50/-
		Method Development (per Hour of Instrument time)	1000/-	750/-	600/-	100/-
		ECD /FID mode	500/-	375/-	300/-	50/-
4	<b>Ultra-High Performance Liquid Chromatography (UHPLC)</b>	Qualitative Analysis using DAD/RID - Reverse Phase Chromatography (per injection) <ul style="list-style-type: none"> <li>• RM to be provided by party</li> </ul>	500/-	375/-	300/-	50/-
		HPLC Method Development (per hour of instrument time)	1000/-	750/-	600/-	100/-
5	<b>ICP-MS (Calibration Standard1:</b> Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ho, In, K, La, Li, Lu, Mg, Mn, Na, Nd, Ni, P, Pb, Pr, Rb, Re, Sc, Se, Sm, Sr, Tb, Th, Ti, Tm, U, V, Y, Yb, Zn, Hg)	Elemental Analysis (up to 10 elements from same Calibration Standard)	1000/- + 100 Filtration charge per sample (@PTFE syringe filter 0.22micron)	750/- + 100 Filtration charge per sample (@PTFE syringe filter 0.22micron)	600/- + 100 Filtration charge per sample (@PTFE syringe filter 0.22micron)	100/- + 100 Filtration charge per sample (PTFE syringe filter 0.22micron)
		After 10 elements from same Calibration Standard or different Calibration Standard per	100/-	75/-	60/-	10/-
	<b>(Calibration Standard2:</b> Ag, Ge, Hf, Mo, Nb, Sb, Si, Sn, Ta,					

**Central Instrumentation Laboratory  
Central University of Punjab, Bathinda**

	Ti, W, Zr)  <b>(Calibration Standard3: Au, Ir, Os, Pd, Pt, Rh, Ru, Te)</b>	element will be charged extra				
		Elemental Analysis >30 elements (per sample)	2500/- + 100 Filtration charge per sample (@PTFE syringe filter 0.22micron)	1875/- + 100 Filtration charge per sample (@PTFE syringe filter 0.22micron)	1500/- + 100 Filtration charge per sample (@PTFE syringe filter 0.22micron)	250/- + 100 Filtration charge per sample (@PTFE syringe filter 0.22micron)
6	<b>Atomic Absorption Spectrometer (AAS)</b> (Al, As, Co, Cr, Cu, Fe, Hg, Mg, Mn, Na, Se, Sn, Te, V, Ni, Zn, Cd, In, Pb, Mo, Sr, Ba, Be, B, Si, Tl, Li, Sb)	Using Flame (per sample per Element)	200/-	150/-	120/-	20/-
		Using Graphite Furnace (per sample per Element)	600/-	450/-	360/-	60/-
		HVG (per sample per Element)	600/-	450/-	360/-	60/-
7	<b>Microwave Digestion charges for AAS/ICP-MS including acids</b>	Method or RM to be provided by the party	400/- (per sample) + 100 Filtration charge per sample (*PTFE syringe filter 0.22 micron)			
		<b>Note:</b> -If the samples are different types, each sample will be charged separate -Geological Samples will not be accepted for MDS	450/- (upto 6 samples) for similar sample + 100 Filtration charge per sample (PTFE syringe filter 0.22micron)			
	<b>Microwave Digestion charges for AAS/ICP-MS excluding acids</b>	Method or RM to be provided by the party	300/- per hour of instrument time+ 100 Filtration charge per sample (PTFE syringe filter 0.22micron)			
8	<b>Confocal Laser Scanning Microscope</b>	dafaqfeqwfwfcq fwfd	2000/-	1500/-	1200/-	200/-
		Live cell imaging (per hour of the instrument)	2500/-	1875/-	1500/-	250/-

**Central Instrumentation Laboratory  
Central University of Punjab, Bathinda**

		(Maximum 5 Images per sample)				
9	<b>Field Emission Electron Microscope</b>	<b>Maximum number of five Images per sample will be provided</b>				
		SEM per sample (Maximum 5 Images per sample)	750/- + 250- /350/- (Gold/ Silver coating per sample)	600/- + 100/- /200/- (Gold / Silver coating per sample)	500/- + 100/- /200/- (Gold/ Silver coating per sample)	75/- + 25/- /35/- (Gold /Silver coating per sample)
		SEM (per hour measurement)	5000/- + 250- /350/- (Gold/ Silver coating per sample)	3750/- + 250- /350/- (Gold/ Silver coating per sample)	3000/- + 250- /350/- (Gold/ Silver coating per sample)	500/- + 250- /350/- (Gold/ Silver coating per sample)
		EDX (Per sample per measurment)	750/- + 250- /350/- (Gold/ Silver coating per sample)	600/- + 100/- /200/- (Gold / Silver coating per sample)	500/- + 100/- /200/- (Gold/ Silver coating per sample)	75/- + 25/- /35/- (Gold /Silver coating per sample)
		Mapping (per sample per measurement upto 10 min.)	750/- + 250- /350/- (Gold/ Silver coating per sample)	600/- + 100/- /200/- (Gold / Silver coating per sample)	500/- + 100/- /200/- (Gold/ Silver coating per sample)	75/- + 25/- /35/- (Gold /Silver coating per sample)
		Mapping (per hour measurement)	5000/- + 250- /350/- (Gold/ Silver coating per sample)	3750/- + 250- /350/- (Gold/ Silver coating per sample)	3000/- + 250- /350/- (Gold/ Silver coating per sample)	500/- + 250- /350/- (Gold/ Silver coating per sample)
		Coating for SEM/EDX/Ma pping per	250/- Gold coating; 350/-	100/- Gold coating;	100/- Gold coating;	25/- Gold coating; 35/-

**Central Instrumentation Laboratory  
Central University of Punjab, Bathinda**

		sample	Sliver Coating	200/- Sliver Coating	200/- Sliver Coating	Sliver Coating
10	<b>Flow Cytometer</b>	For prepared sample (per hour)	2000/-	1775/-	1600/-	200/-
11	<b>Clinical Chemistry Analyzer</b>	Per hour without consumables	1800/-	1350/-	1080/-	180/-
12	<b>Gas Chromatography – (TCD/FID)</b>	TCD/FID (per sample)	200/-	150/-	120/-	20/-
		Per sample / per hour	500/-	375/-	300/-	50/-
13	<b>UV-Vis Spectrometer</b>	Per sample / per hour	50/-	35/-	30/-	5/-
14	<b>Fourier Transmission Infrared Spectrometer (FTIR)</b>	Routine Spectrum (ATR & TR) (per sample)	100/-	75/-	60/-	10/-
15	<b>Fluorescence Microscope</b>	For prepared sample fixed slide (per hour)	500/-	350/-	300/-	50/-
16	<b>DNA Sequencer**</b>	Sanger Sequencing and Fragment Analysis	500/-	375/-	300/-	50/-

RM: Reference Material

**Note:** Work related to consultancy will be treated as external work. Provision may please be made accordingly while estimating consultancy fee.

**Central Instrumentation Laboratory  
Central University of Punjab, Bathinda  
Guideline for Sample Submission**

\*Internal users have to provide prepared samples for analysis with reference standards except for ICP-MS and AAS

\*\*Prepared sample to be submitted for Sanger Sequencing and Fragment Analysis

- The analytical data / spectra provided cannot be used as certificates in legal disputes.
- Service charges including GST will be applicable as per Govt. Regulation from time to time.
- Consumables provided by the CIL for sample analysis will be charged extra as per actual cost of the consumables.
- The payment mode is through online banking only via debit/credit card and UPI address. Samples will not be analyzed until payment is received.
- Separate samples should be sent for different analysis.
- Infectious / hazardous sample will not be entertained for analysis.
- For Data, the user should provide new CD/DVD.
- In all correspondence related to analysis, our reference number must be mentioned.
- Interpretation of Data / Spectra will not be done.
- It is mandatory for user to acknowledge the facility in their research work and communicate the same to Central Instrumentation Laboratory, CUPB as and when the results are published in public domain.

For Central Instrumentation Laboratory visit, it is mandatory to take prior appointment from Incharge, CIL before your visit. The application should be sent through the head of the department / institution / company.

**Central Instrumentation Laboratory  
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**Instruction for NMR Measurement and Sample Submission Procedure  
for Internal & External Users**

§Users are strongly advised to check the solubility of the samples before sending the same to us for NMR measurement to avoid wastage. For routine NMR measurements, only solvents in the deuterated form can be used.

**Sample Requirements**

$^1\text{H}$ : 5-10 mg

$^{13}\text{C}$ , 2D etc.: 20-30 mg

**For Internal Users**

1. Internal users of NMR facility are requested to submit their samples in good quality NMR tubes (Wilmad, Norell, Sigma-Aldrich etc.)
2. 0.5 mL (500  $\mu\text{L}$ ) of clear solution is required to record good spectra.
3. Do not use dichromate solution for cleaning NMR tubes.
4. The caps should be cleaned separately
5. Do not keep the NMR tubes in Oven for drying.
6. After cleaning, rinse it with Acetone/ $\text{CCl}_4$ , keep it inverted for 2-3 hrs and dry it in Air overnight.
7. Label your samples clearly.
8. Please do not submit samples in broken NMR tubes. If the tube breaks inside the probe, it may damage the probe insert.
9. Maximum number of samples per requisition is restricted to four.
10. Also mention if the sample is paramagnetic or ferromagnetic in nature.

**For External Users**

1. Please check the solubility of your samples before submitting samples for recording solution state NMR
2. Mention the deuterated solvent to be used for recording the NMR spectrum
3. Deuterated solvents available at our centre are  $\text{CDCl}_3$ ,  $\text{DMSO-D}_6$ ,  $\text{D}_2\text{O}$ , Acetonitrile- $\text{d}_3$
4. The user has to provide the other deuterated solvents
5. Clearly mention the nucleus to be studied ( $^1\text{H}$ ,  $^{13}\text{C}$ ,  $^{29}\text{Si}$ ,  $^{31}\text{P}$ ,  $^{11}\text{B}$  etc) and the type of measurement (1D, DEPT, 2D, etc)
6. If you need, 2D measurement, clearly mention the type of measurement (COSY, DQFCOSY, NOESY, ROESY, HSQC, HMBC etc)
7. For Variable Temperature (VT) measurement, please mention the temperature range. Check the BP/MP of the solvent before selecting the temperature for VT experiments.
8. If you are submitting your samples in NMR tubes, use only good quality NMR tubes (Wilmad, Norell, Sigma-Aldrich etc).
9. Also mention if the sample is paramagnetic or ferromagnetic in nature.