

GAS CHROMATOGRAPH

Photo of Instrument:



Instrument Name	Gas Chromatograph (G C)
Instrument Model & Serial No.	GC-2010 Plus
Instrument Make	SHIMADZU
Category of Instrument	Analytical Laboratory Equipment.
Description of Instrument	A gas chromatograph (GC) is typically categorized as analytical laboratory equipment used for separating and analyzing compounds in a mixture for qualitative and quantitative analysis of substances.
Instrument Technical Description and Major Specifications (This Specifications Limited to Major 5)	<p>Technical Description</p> <p>*Injector: Where the sample is introduced into the system. Common injection methods include split, split less, and on-column injections.</p> <p>*Column: A long, narrow tube packed with a stationary phase or coated with a stationary phase film. The column separates the components of the sample based on their interactions with the stationary phase.</p> <p>*Oven: The column is housed within an oven, which allows for precise temperature control. Temperature programming can be used to optimize separation.</p> <p>*Detector: The detector measures the</p>

Department of Chemical Engineering, NIT Calicut

	<p>concentration of the separated components as they elute from the column. Common detectors include flame ionization detector (FID), thermal conductivity detector (TCD), electron capture detector (ECD), and mass spectrometer (MS).</p> <p>*Data System*: A computer or data system is used to control instrument parameters, collect data from the detector, and process the results.</p> <p>Specifications</p> <p>*Column Type and Dimensions: The length, diameter, and stationary phase of the column, which affect separation efficiency and resolution.</p> <p>*Temperature Range: The range over which the oven can be programmed, which determines the types of compounds that can be analysed. (From ambient to 450°C)</p> <p>*Detector Sensitivity and Selectivity: The ability of the detector to detect and differentiate between different compounds.</p> <p>*Analysis Time: The time it takes to complete an analysis, which depends on factors such as column length, temperature program, and detector sensitivity.</p> <p>*Detection Limits: The minimum concentration of a compound that can be reliably detected and quantified.</p>
<p>Application of Instrument (Limited to Major 4 or 5)</p>	<p>It's commonly employed in various fields such as</p> <ul style="list-style-type: none"> * Chemistry * Environmental Science * Forensics * Pharmaceuticals
<p>Type of Sample Required for Analysis/Testing (Quantity, Pre-Preparation, State etc.) Guidelines for Sample Submission – User Instructions</p>	<p>Gas chromatography (GC) can analyze a wide range of samples, including gases, volatile liquids, and volatile solids. However, for effective analysis, the sample typically needs to be in the gas or vapour phase. Overall, the sample preparation method depends on the nature of the sample and the analytes of interest, and it's essential to choose the appropriate method to ensure accurate and reliable results.</p>
<p>Types of Analysis/Testing</p>	<ul style="list-style-type: none"> *Qualitative analysis *Quantitative analysis

Department of Chemical Engineering, NIT Calicut

	*Purity analysis *Residue analysis *Clinical and biomedical analysis
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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	Qualitative analysis /Quantitative analysis		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.