



**Bringing Scientific & Technical  
Resources to the African Continent**

**Chrom Africa Instrumentation Services Limited**  
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## SPECIALIZED TRAINING ON SERVICE, MAINTANCE & CALIBRATION OF ANALYTICAL LABORATORY EQUIPMENTS (22<sup>nd</sup> – 26<sup>th</sup> APRIL 2024)

### Overview of equipment Service, Maintenance and Calibrations

The care and maintenance of laboratory equipment are an integral part of quality assurance in the lab. Well-maintained lab equipment ensures that data is consistent and reliable, which in turn impacts the productivity and integrity of the work produced.

Furthermore, since laboratory equipment generally takes up a big cut of the budget, good maintenance contributes to cost-cutting measures, by lowering the chances of premature repurchases and replacement.

In addition, routine maintenance ensures that lab equipment is safe for use by highlighting and repair of faulty equipment and equipment parts. Various procedures and routines will ensure that your laboratory equipment is well-maintained and cared for, this includes:

<b>DAY 1</b>	<b>EVENTS</b>
<b>09.00-09.30</b>	Registration and climate setting
<b>09.30-10.00</b>	<ul style="list-style-type: none"> <li>○ Developing standard operating procedures for all lab equipment.</li> <li>○ Preparing documentation on each specific equipment, outlining the repairs and maintenance undertaken.</li> <li>○ Outlining a preventive maintenance program for each piece of equipment.</li> <li>○ Training both technical and managerial staff on proper use and care of lab equipment.</li> </ul>
<b>10.00-10.30</b>	<i>Tea Break</i>
<b>11.00-12.30</b>	<ul style="list-style-type: none"> <li>○ Standard Operating Procedure for Maintenance of Lab Equipment</li> <li>○ Equipment Maintenance Documentation</li> <li>○ Preventive Maintenance Program</li> </ul>
<b>12.30-14.00</b>	<i>Lunch Break</i>
<b>14.00-16.30</b>	<ul style="list-style-type: none"> <li>○ General Care Tips for Lab Equipment, Calibration, Repairs, Refurbishments &amp; Quality Replacement.</li> </ul>
<b>DAY 2</b>	
<b>9.00-10.30</b>	<p><b>UV-Vis spectrophotometer service and support Training</b></p> <ul style="list-style-type: none"> <li>○ Increase productivity, boost uptime, and reduce costs with a preventative service and support strategy to keep your instrument in peak operating condition by annual service, maintenance and calibration overview</li> <li>○ <b>Cleaning the instruments</b></li> <li>○ Exchanging Deuterium or Tungsten lamps</li> </ul>
<b>10.30-11.00</b>	<i>Tea Break</i>

11.00-12.30	<p><b>The key components of a UV-Vis spectrophotometer are:</b></p> <ul style="list-style-type: none"> <li>○ Other optical components, such as lenses, mirrors, or fiber optics, relay light through the instrument., , Light sources</li> </ul>
12.30-14.00	<b>Lunch Break</b>
14.00-16.30	<ul style="list-style-type: none"> <li>○ Monochromators Sample compartments, Detectors and maintenance</li> <li>○ Analytical balances Service and Calibration.</li> <li>○ Calibration of water bath</li> <li>○ Calibration of centrifuge and Drying oven</li> </ul>
<b>DAY 3</b>	
9.00-10.30	<p><b>Training courses for all sorts of HPLC Maintenance &amp; Troubleshooting.</b>  The training course is designed to provide hands-on experience and solid understanding performing routine maintenance and troubleshooting on HPLC systems from varied manufacturers, helping to make informed choices. The topics to be covered are briefly outlined as below:  Instrument problems and identifying the issue  <b>Common Maintenance &amp; Operations</b></p> <ul style="list-style-type: none"> <li>○ Maintenance of Pumps</li> <li>○ Maintenance of Auto samplers – Rheodyne valves, seals, metering devices, syringes etc.</li> <li>○ Maintenance of detectors – lamp replacement, flow cell clean-up</li> </ul>
10.30-11.00	<b>Tea Break</b>
11.00-12.30	<p><b>Common Calibration and Operations</b></p> <ul style="list-style-type: none"> <li>○ Calibrating pump flow</li> <li>○ Calibrating Auto sampler volume</li> <li>○ Calibrating detector wavelength and response</li> <li>○ Testing lamp intensity</li> <li>○ Testing flow cell cleanliness</li> </ul> <p><b>Chromatographic problem solving</b></p> <ul style="list-style-type: none"> <li>○ Baseline problems</li> <li>○ Peak shape problems</li> <li>○ Retention time drift</li> </ul> <p>Peak area irreproducibility Calibrating column temperature</p>
12.30-14.00	<b>Lunch Break</b>
14.00-16.30	<p><b>LC-MS Maintenance and Troubleshooting - Tips and Tricks for New Users:</b>  Common contamination; Sample Clean-up Methods – eliminating matrix/salt/detergent effects: • ultra filtration • solvent extraction/desalting • liquid-liquid extraction • solid phase extraction (SPE) • immuno affinity • on-column concentration • column switching (LC/LC)</p> <ul style="list-style-type: none"> <li>○ Source of contamination</li> <li>○ Cleaning of contamination</li> </ul>

	<ul style="list-style-type: none"> <li>○ Control contamination</li> </ul>
<b>DAY 4</b>	
<b>9.00-10.30</b>	<p><b>GC Maintenance &amp; Troubleshooting.</b> The training course is designed to provide hands-on experience and solid understanding performing routine maintenance and troubleshooting on GC systems from varied manufacturers, helping to make informed choices. The topics to be covered are briefly outlined as below:</p> <p><b>Instruments problems &amp; Identify issues of common maintenance operations</b></p> <ul style="list-style-type: none"> <li>○ Importance of quality gases</li> <li>○ GC Inlet maintenance ( split/split less/liner)</li> <li>○ Septum Replacement</li> <li>○ Syringe Cleaning</li> <li>○ GC Detector maintenance – FID,ECD/NPD</li> <li>○ Column installation procedure, Conditioning and storage</li> </ul>
<b>10.30-11.00</b>	<b>Tea Break</b>
<b>11.00-12.30</b>	<p><b>Common Calibration Operations</b></p> <ul style="list-style-type: none"> <li>○ Testing inlet for leakage</li> <li>○ Differentiating between split and split less</li> <li>○ Establishing proper split/splitless flow</li> <li>○ Establishing hold up time, Calibrations of pressure control; system and gas flow</li> <li>○ Optimization of detector settings</li> </ul> <p><b>Common Chromatographic problem</b></p> <ul style="list-style-type: none"> <li>○ Baseline problem</li> <li>○ Peak shape problems</li> <li>○ Detection Drift</li> <li>○ Peak area irreproducibility</li> </ul>
<b>12.30-14.00</b>	<b>Lunch Break</b>
<b>14.00-15.30</b>	<p><b>GC-MS Maintenance and Troubleshooting - Tips and Tricks for New Users</b></p> <p>Problem Diagnostics, Maintaining Mass Selective Detectors Maintenance Schedule</p> <p>Contamination, Mass Spectral Symptoms, Ion Source, Vacuum Systems and Pumps</p> <p>Electron Multipliers and Replacement Horn Source Cleaning, Maintaining the MS Engine, Maintenance Schedule Ion Source Parts and Supplies</p> <p style="padding-left: 40px;">Replacement Parts and Supplies</p> <ul style="list-style-type: none"> <li>○ Cleaning Quadruple Rods</li> <li>○ Ion Detector Replacement</li> </ul>

	<ul style="list-style-type: none"> <li>○ Pump Maintenance and Oil Change</li> </ul>	
<b>DAY 5</b>		
<b>9.00-10.30</b>	<b>Trouble Shooting and Maintenance of ICP-OES/MS/AES Systems</b>  <b>Common ICP-OES/MS Problems Reported by Users</b> <ul style="list-style-type: none"> <li>○ Sensitivity:</li> <li>○ Precision</li> <li>○ Accuracy</li> <li>○ Poor Sample Throughput</li> <li>○ Laboratory Environment</li> </ul>	
<b>10.30-11.00</b>	<b>Tea Break</b>	
<b>11.00-12.30</b>	<ul style="list-style-type: none"> <li>○ ICP-OES/AES – Recommended Maintenance Schedule, Daily: Weekly: Monthly: 6 Monthly:</li> <li>○ Overview – Key Consumables for ICP-OES/MS/AES</li> </ul>	
<b>12.30-14.00</b>	<b>Lunch Break</b>	
<b>14.00-15.00</b>	Directors speech and issue of certificates	
<b>DATES</b>	<b>COST</b>	<b>VENUE</b>
<b>22<sup>nd</sup> - 26<sup>th</sup> April 2024</b> <b>Deadline: 1<sup>st</sup> April 2024</b>	<b>KES: 92,800.00 or USD 928.00</b>	<b>NAIROBI</b>

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