

**GC-MS WORKSHOP PROGRAMME**  
**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**  
**DEPARTMENT OF CHEMISTRY**  
**2<sup>nd</sup> - 6<sup>th</sup> MARCH, 2009**

**DAY 1: MONDAY 2<sup>nd</sup> MARCH, 2009**

<b>OPENING CEREMONY:</b>		
<b>Venue:</b> Lecture Theatre (ACC100)		
<b>Chair:</b> Prof S. Chacha		
<b>Master of ceremony:</b> Dr Tsanuo, M.K. (Chairman, Chemistry Department - JKUAT)		
<b>TIME</b>	<b>EVENT</b>	<b>PRESENTERS</b>
8.30 - 9.00	(a) Arrival & Registration of Participants	Secretariat
9.00 - 9.45	(b) Remarks:- CoD Chemistry	Dr Tsanuo, M.K.
	- Dean, Faculty of Science	Prof Mulati D.
	- Chair PACN Kenya	Prof Wandiga S.O.
	-DCV (RPE)	Prof Kahangi E.
	-DVC (APD)	Prof Njeru F.
	-DVC (AA)	Prof Odhiambo R.
9.45 - 10.15	Official Opening & Opening remarks	Prof Imbuga M.
10.15 - 10.45	<i>Tea Break</i>	
<b>TRAINING SESSION 1</b>		
<b>Venue: IEET ENV LAB</b>		
10.45 - 11.30	GC Instrumentation:	Prof. Antony Gachanja/ Dr. Steve Lancaster
	(a) Gas chromatography-basic theory	''
	(b) Columns and separation considerations	''
	(c) Injection systems	''
11.30 - 12.30	Mass Spectrometer instrumentation:	''
	(a) Basic Theory	''
	(b) Ionization	''
	(c) Mass spectrometer types	''
12.30 - 1.00	Open Discussion	
1.00 - 2.00	<i>Lunch Break</i>	
<b>TRAINING SESSION 2</b>		
<b>Venue: IEET ENV LAB</b>		
2.00 - 3.30	<b>Practical Session 1: IEET ENV LAB/GC-MS LAB</b>	
	Basic Maintenance for GC-MS	Prof. Antony Gachanja/ Dr. Steve Lancaster
3.30 - 4.0	<i>Tea break</i>	
4.00 - 5.00	Basic Maintenance for GC-MS (Contd)	''
5.30 - 7.00	<b>COCKTAIL</b> <b>Venue: AICAD</b> <b>Sponsored by: PACN Kenya</b>	

**DAY 2: TUESDAY 3<sup>rd</sup> MARCH, 2009**

<b>TRAINING SESSION 3</b>		
<b>Venue: IEET ENV LAB</b>		
8.30 - 10.00	<b>Basic Spectral interpretation:</b>	
	(a) Introduction	Prof. Antony Gachanja/ Dr. Steve Lancaster
	(b) Isotope abundances – how can these be useful?	''
	(c) Spectral appearance including some examples	''
10.00 - 10.30	<i>Tea Break</i>	
10.30 - 12.30	Elemental formulas including	''
	(a) isotopic abundances,	''
	(b) use of abundances for determining carbon and oxygen, rings plus double bonds equivalents	''
12.30 - 1.00	Open Discussion	
1.00 - 2.00	<i>Lunch Break</i>	
<b>TRAINING SESSION 4</b>		
<b>Venue: IEET ENV LAB</b>		
2.00 - 3.30	<b>Practical Session 2:</b>	
	Exercises to determine simple structures	Prof. Antony Gachanja/ Dr. Steve Lancaster
3.30 - 4.00	<i>Tea break</i>	
4.00 - 5.00	Exercises to determine simple structures (Contd)	''

**DAY 3: WEDNESDAY 4<sup>TH</sup> MARCH, 2009**

<b>TRAINING SESSION 5</b>		
<b>Venue: IEET ENV LAB</b>		
8.30 - 10.00	More advanced methods in spectral interpretation including	Prof. Antony Gachanja/ Dr. Steve Lancaster
	(a) Nitrogen rule	''
	(b) Molecular ion	''
	(c) Molecular weight determination	''
10.00 - 10.30	<i>Tea break</i>	
10.30 - 12.30	Single bond cleavage	''
	Multiple bond cleavage	''
	Rearrangements, specifically McLafferty	''
12.30 - 1.00	Open Discussion	
1.00 - 2.00	<i>Lunch Break</i>	
<b>TRAINING SESSION 6</b>		
<b>Venue: IEET ENV LAB</b>		
2.00 - 3.30	Exercises in spectral interpretation	''
3.30 - 4.00	<i>Tea break</i>	
4.00 - 5.00	Exercises in spectral interpretation (Contd)	''

**DAY 4: THURSDAY 4<sup>TH</sup> MARCH, 2009**

<b>TRAINING SESSION 7</b>		
<b>Venue: GC-MS LAB</b>		
8.30 - 10.00	<b>Practical session 3</b>	
	Setting up and tuning the mass spectrometer	Prof. Antony Gachanja/ Dr. Steve Lancaster
10.00 - 10.30	<i>Tea break</i>	
10.30 - 1.00	Setting up and tuning the mass spectrometer (Contd)	``
1.00 - 2.00	<i>Lunch break</i>	
2.00 - 3.30	Quantitative exercises including the use of internal standards	``
3.30 - 4.00	<i>Tea break</i>	
4.00 - 5.00	Quantitative exercises including the use of internal standards (Contd)	``

**DAY 5: FRIDAY 5<sup>TH</sup> MARCH 2009**

<b>TRAINING SESSION 8</b>		
<b>Venue: IEET ENV LAB</b>		
8.30 - 10.00	Sample pre-treatment including	Prof. Antony Gachanja/ Dr. Steve Lancaster
	- solid phase extraction	``
	- liquid/liquid extraction	``
	Identification of unknowns in an analgesic drug sample	``
	Designing experiments to quantify some compounds in the above matrix	``
10.00 - 10.30	<i>Tea Break</i>	
10.30 - 11.30	Open Discussion	
11.30 - 1.00	Way forward	
1.00 - 2.30	<i>Lunch Break</i>	
2.30 - 3.30	<b>Closing Ceremony</b>	