

**MULTIMEDIA UNIVERSITY OF KENYA**

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+254 020 735900008 Fax: +254 020 2071243 Email: [info@mmu.ac.ke](mailto:info@mmu.ac.ke)*(MMU is ISO 9001:2008 Certified)***FACULTY OF SCIENCE & TECHNOLOGY****COURSE OUTLINE****UNIT CODE: CHA 2405****UNIT NAME: Forensic Chemistry****LECTURER NAME: Dr Njogu****CONTACTS: 0721 398 380****Course Objectives:**

To introduce the basics of forensic chemistry and familiarize the students with the methods used in handling and chemical analysis of forensic samples

**Content Summary:**

<b>Lecture/ Week</b>	<b>Course content</b>	<b>Remarks</b>
1 - 2	<b>1.0 Introduction</b> <ul style="list-style-type: none"><li>- Forensic chemistry versus analytical chemistry</li><li>- Forensic question versus legal question</li><li>- Chemistry and law</li><li>- Forensic and legal concepts</li><li>- Forensic analysis</li><li>- Forensic mind set</li><li>- Review: metrology, measurement, significant figures, uncertainty, accuracy, precision, error, hypothesis testing, outliers, quality control, quality analysis, uncertainty, samples and sampling plans</li></ul>	
3	<b>2.0 Chemical fundamentals and their application in forensic chemistry; review of</b> <ul style="list-style-type: none"><li>- Principles of partitioning and acid-base equilibria</li><li>- Microscopes and chemical microscopy</li><li>- Spectroscopy</li><li>- Mass spectrometry</li><li>- Microspectrophotometry</li><li>- Electrophoretic instruments</li></ul>	

	- Hyphenated instrumentation	
4 - 5	<b>3.0 Analysis of drug samples:</b> - Tetrahydrocannabinols (Marijuana and hashish) - Alkaloids (opiate alkaloids and heroin), - Non-alkaloids (amphetamines)	
6	- <b>CAT 1 &amp; ASSIGNMENT</b>	
7 - 8	<b>4.0 Forensic chemistry in Combustion and arson investigation</b>	
9 - 10	<b>5.0 Firearms and associated chemical evidence</b>  <b>CAT 2</b>	
11 - 12	<b>End of semester examination</b>	

**Assessment Mode:**

**Students Performance** will be assessed through continuous assessment tests, assignments, and laboratory experiments (**where applicable**) that will account for 30 %.

End of semester exam will account for 70 %.

**Staff performance:** A questionnaire at the end of each semester for students to fill.

**Practicals:****References:**

David Harvey (200). Modern analytical chemistry USA, McGraw-Hill Companies,

Skoog, D.A., West D.M. & Crouch, S.R (2013). Fundamentals of Analytical Chemistry (9<sup>th</sup> ed.).

New Dheli, India: Cengage Learning, ISBN-10: 0495558281.

Approved for use: Sign: (CoD) \_\_\_\_\_

Date: \_\_\_\_\_