

KAE 248/2 – Analytical Chemistry: Advanced Practical

Course Objective : To become acquainted with the practical applications in forensic sciences, food and adulteration of milk, cooking oil, drinks and toxic materials and metals.

Experiment title	Content	Number of laboratory hours	Expected outcome – upon completion of these experiments, the student should be able to:
1. Solvent Extraction	<ul style="list-style-type: none">Isolation and identification of flammable hydrocarbons	6	<ul style="list-style-type: none">Carry out solvent extraction of hydrocarbons.Identification of hydrocarbons by gas chromatography.
2. Food Adulterants	<ul style="list-style-type: none">Determination of fats and proteins in milk and identification of food adulterants	6	<ul style="list-style-type: none">Perform Kjeldahl analysis to determine the protein content in milk powder.Determine the fat content of a milk powder sample using Rose Gottlieb's method.Determine the presence of starch using a microscope.
3. Analysis of Soft Drinks	<ul style="list-style-type: none">Determination of food colorants, preservatives (benzoic acid) and sweeteners	6	<ul style="list-style-type: none">Isolate water soluble colorants and identify them using thin layer chromatography.Extract benzoic acid and saccharin from real samples.Determine benzoic acid content of food samples.Determine saccharin content.
4. Oils and Fats in Food	<ul style="list-style-type: none">Identification of vegetable oils and its mixture with mineral oils	6	<ul style="list-style-type: none">Carry out qualitative tests on mineral oils.Determine free fatty acids in cooking oil and fats.Determine iodine values for oil or fats samples.Determine saponification value for oil or fats samples.
5. Forgery in Documents	<ul style="list-style-type: none">Analytical methods in detecting forgery in documents	6	<ul style="list-style-type: none">Carry out literature search at the library.Write a report on an analytical method used to detect forgery in documents.
TOTAL		30	