

IMMACULATE CONCEPTION HIGH

EASTER TERM PLAN

GRADE 13

CHEMISTRY

2023-2024

JANUARY 8 – MARCH 27

DATE	WEEKS	THEORY	LABS/ COURSEWORKS/ ASSIGNMENTS
JANUARY			
Jan 8 – 12	WEEK 1	ANALYTICAL METHODS AND SEPARATION TECHNIQUES <ul style="list-style-type: none">● Review of test 2 from last term.● Explain the principles upon which gravimetric analysis is based.● Perform calculations based on data obtained from gravimetric analyses.	LAB – UV/VIS Spectroscopy WORKSHOP - UWI
Jan 15 – 19	WEEK 2	ANALYTICAL METHODS AND SEPARATION TECHNIQUES <ul style="list-style-type: none">● Explain the nature of electromagnetic radiation.● State the approximate wavelength ranges of the X-ray, UV-VIS, IR and radio frequency regions of the electromagnetic spectrum.● Recall that the energy levels in atoms and molecules are quantized.● Explain the origin of absorption in UV/VIS spectroscopy.	

		<ul style="list-style-type: none"> ● Explain why some species will absorb light in the UV/VIS region whereas others will not. 	
Jan 22 – 26	WEEK 3	<p>ANALYTICAL METHODS AND SEPARATION TECHNIQUES</p> <ul style="list-style-type: none"> ● Describe the basic steps involved in analyzing samples by UV/VIS spectroscopy. ● Use Beer-Lambert's Law to calculate the concentration of a given species in solution. ● List examples of the use of UV/VIS spectroscopy in the quantification of substances. ● Explain the origin of absorption in the IR spectroscopy. ● Describe the basic steps involved in analyzing samples by IR spectroscopy. ● Comment on the limitations associated with the use of IR spectroscopy. 	LAB – Thermometric Titration
Jan 29 – Feb 2	WEEK 4	<p>ANALYTICAL METHODS AND SEPARATION TECHNIQUES</p> <ul style="list-style-type: none"> ● Deduce the functional groups present in organic compounds from IR spectra. ● Cite examples of the use of IR spectroscopy in monitoring air pollutants. ● Explain the basic principles of mass spectrometry. 	LAB - Percentage Purity of CaCO₃ Coursework – Analytical Chemistry

		<ul style="list-style-type: none"> ● Explain the significance of the M+1 peak in mass spectra. ● Use mass spectral data to: Determine relative isotopic masses and relative isotopic abundances. Distinguish between molecules of similar relative molecular mass. ● Predict possible identities of simple organic molecules based on their fragmentation pattern. 	
FEBRUARY			
Feb 5 – 9	WEEK 5	<p style="text-align: center;">ANALYTICAL METHODS AND SEPARATION TECHNIQUES</p> <ul style="list-style-type: none"> ● Explain the theoretical principles upon which the chromatographic methods are based. ● Explain the terms retention factor (R_f) and retention time, visualizing agent and solvent front. ● Describe the basic steps involved in separating and quantifying the components of a mixture. ● Name examples of commonly used stationary phases. ● Cite applications of chromatographic methods of separation. ● Discuss the chemical principles upon which simple distillation and fractional distillation are based. 	LAB – Baking Soda PD

**Feb 12 – 14
WEEK 6
MID-TERM BREAK**

**Feb 15 – 16
WEEK 6
STANDARDIZED TEST**

Feb 19 – 23	WEEK 7	<p style="text-align: center;">ANALYTICAL METHODS AND SEPARATION TECHNIQUES</p> <ul style="list-style-type: none"> ● Discuss the advantages of carrying out distillation processes under reduced pressures. ● Discuss the chemical principles and use of steam distillation. 	<p>LAB – Paper Chromatography</p> <p>LAB – Distillation of Alcohol from Rum PD</p>
Feb 26 – Mar 1	WEEK 8	<p style="text-align: center;">ANALYTICAL METHODS AND SEPARATION TECHNIQUES</p> <ul style="list-style-type: none"> ● Discuss the principles upon which solvent extraction is based. ● Select appropriate methods of separation, given the physical and chemical properties of the components of a mixture. ● Perform simple distillation experiments. ● Carry out simple separation techniques (may be virtual) based on solute partitioning between two immiscible solvents. ● Cite examples of the applications of the distillation methods used in various industries. 	<p>Coursework – Analytical Chemistry</p>

MARCH

Mar 4 – 8	WEEK 9	<p style="text-align: center;">ANALYTICAL METHODS AND SEPARATION TECHNIQUES</p> <ul style="list-style-type: none"> ● discuss the chemical principles upon which simple distillation and fractional distillation are based; ● discuss the advantages of carrying out distillation processes under reduced pressures; ● discuss the chemical principles and use of steam distillation; ● discuss the principles upon which solvent extraction is based; ● select appropriate methods of separation, given the physical and chemical properties of the components of a mixture; ● cite examples of the applications of the distillation methods used in various industries. 	
Mar 11-22 WEEK 10 – 11 MOCK EXAM			
Mar 25 – 27	WEEK 12	REVISION OF MOCK EXAM COMPLETION OF LABS	

END OF TERM