

## (4) Medical Chemistry

<b>Technical college</b>	<b>30 Weeks</b>	<b>No. of week hours</b>		
<b>Department: Medical Instrumentation Engineering</b>		<b>Th.</b>	<b>Pr.</b>	<b>Unit</b>
		<b>2</b>	<b>2</b>	<b>6</b>
<b>First Year</b>	<b>Subject: Medical Chemistry.</b>			

**أهداف المادة :** دراسة الترابط بين الكيمياء و الفيزياء و ما يترتب على ذلك من قوانين ، كما يهدف إلى دراسة حالات المادة و طرق التحويل من حالة إلى أخرى مع خواص كل مادة منها و ما يبحث بتحويل الطاقة إلى شغل أو بالعكس و كذلك دراسة الحرارة الناتجة من التفاعلات الكيميائية المختلفة .

<b>Week</b>	<b>Syllabus</b>
1 <sup>st</sup>	Introduction to analytical chemistry. Qualitative analytical chemistry. Quantitative analytical chemistry.
2 <sup>nd</sup>	Applications of quantitative analysis. First steps in making analysis.
3 <sup>rd</sup> , 4 <sup>th</sup>	Methods of Expressing analytical concentrations: Normality, Formality, Molarity.
5 <sup>th</sup>	Mole traction, Mill equivalent.
6 <sup>th</sup>	Volumetric analysis: principles, standard, solution.
7 <sup>th</sup>	Classification of volumetric method.
8 <sup>th</sup>	Acid-Base indicators, buffer solution.
9 <sup>th</sup>	Precipitation reaction, the PH- scale.
10 <sup>th</sup> , 11 <sup>th</sup>	Gravimetric analysis, calculations.
12 <sup>th</sup>	Salability of precipitations.
13 <sup>th</sup>	Errors & treatment of analytical data sources of errors, Determinates of errors indeterminate errors, average mode, range, medicine.
14 <sup>th</sup>	Average derivation, standard deviation, variance, method of expressing accuracy.
15 <sup>th</sup>	Absolute error, relative error, rejecting pf experimental result.
16 <sup>th</sup>	Thermodynamic: First law of thermodynamic.

17 <sup>th</sup>	Reversible of irreversible expansion.
18 <sup>th</sup>	Heat capacities, adiabatic expansion.
19 <sup>th</sup> , 20 <sup>th</sup>	Second law of thermodynamic: spontaneous processes.
21 <sup>st</sup> , 22 <sup>nd</sup>	Garnat cycle, entropy.
23 <sup>rd</sup> , 24 <sup>th</sup>	Electrochemistry: electrochemical cells, types of electrodes, electrolytes.
25 <sup>th</sup>	Electromotive force.
26 <sup>th</sup>	Nernst equation, cell potential.
27 <sup>th</sup>	Photochemistry (spectrophotometer analysis). Regions of electromagnetic spectrum.
28 <sup>th</sup>	Absorption and emission of electromagnetic spectrum.
29 <sup>th</sup>	Beer, Lambert law instrumentation.
30 <sup>th</sup>	Components of spectrophotometer. Analysis by spectrophotometer.