**University of Duhok**



**Faculty of Science**

**Department of chemistry**

Course Book

**Course book for Analytical Chemistry**

**2nd Stage**

**2 hrs / Week**

**2022-2023**

**PRACTICAL ANALYTICAL**

**CHEMISTRY**

**FIRST SEMESTER**

**GRAVIMETRIC ANALYSIS**

**2022-2023**

First Semester

* Experiment no. **1**:

**Determination of crystallization water in hydrated salt.**

**Aim of the experiment.**

1. Determine the percentage by mass of water in hydrated salt.
2. Calculation the chemical formula of the hydrated salt.
* Experiment no. 2:

 Gravimetric analysis of a chloride salt.

**Aim of the experiment.**

1. Determine the percentage by mass of chloride in a salt.
2. Calculation the relative error in gravimetric analysis.

* Experiment no. **3:**

Gravimetric determination of zinc as zinc ammonium phosphate.

**Aim of the experiment.**

1. Determine the percentage by mass of zinc in a sample.
2. To produce a crystalline precipitate.
* Experiment no. **4:**

Gravimetric determination of sulphate as barium sulphate.

**Aim of the experiment.**

1. Determination the percentage by mass of sulphate in a salt.
2. To perform ignition of a precipitate

Experiment no. **5**: Gravimetric determination of iron as anhydrous ferric oxide.

**Aim of the experiment.**

1. Determination the percentage by mass of iron in a salt
2. To perform decantation process.

**Second Semester**

Experiment no. **6:** Gravimetric determination of nickel as nickel dimethylglyoximate.

**Aim of the experiment.**

1. Determination the percentage by mass of nickel in a salt.
2. To use an organic precipitating reagent.

Experiment no. **7:** Gravimetric determination of calcium as calciumoxalate from homogeneous solution.

**Aim of the experiment.**

1. Determination the percentage by mass of calcium in a salt.
2. To use aprecipetation from homogeneous solution technique.

Experiment no. **8:** Gravimetric determination of aluminum as aluminumoxinate.

**Aim of the experiment.**

1. Determination the percentage by mass of aluminum in a salt .
2. To use an organic precipitating reagent.

Experiment no. **9:** Gravimetric determination of saturation degree

(Solubility-product constant of barium hydroxide

**Aim of the experiment.**

1. To determine the concentration of barium hydroxide in an aqueous solution.
2. To calculate the solubility – product constant of barium hydroxide salt.