

Faculty of Medicine and Surgery  
MEDICINE AND SURGERY “MEDTECH”

TEACHING ELECTIVES – Chemistry

**Objectives**

- Provide basic knowledge on classical Chemistry. Passing the OFA test, students will be able to solve simple practical problems.

**Contents**

- Quantities, Units of Measurement and Significant Figures and Calculations.
- Periodic table of elements and inorganic nomenclature.
- Atom: atom models, atomic particles: proton, neutron, electron. Isotopes.
- Electrons and atom electronic configuration.
- Classification of Matter.
- Solutions. Concentrations of solutions: dilution and mixing of solutions.
- Stoichiometry and Types of Chemical Reactions and Solution Stoichiometry.
- Acid and bases, pH.
- Redox reactions. Oxidation number. Redox reactions and their balance.
- Organic Compounds. Identify properties characteristic of organic or inorganic compounds.

**Teaching Materials**

- Textbooks used for University admission tests (i.e., Alpha Test or similar)
- Students can refer to their high-school textbooks for an in-depth study and revision of the topic.

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TEACHING ELECTIVES - Mathematics

**Objectives**

- Integrating the student's knowledge concerning basic mathematical concepts, filling possible gaps in the contents.
- Solving exercises related to the contents, demonstrating the ability to connect the necessary resolution techniques.

**Contents**

- First and second order equations and inequalities. Systems.
- Domain of a function of a real variable and graphical representation.
- Compositions of functions and domain of the composite function.
- Analytical Geometry: formulas concerning line, parabola, circle.
- Exponential functions. Exponential equations and inequalities.
- Logarithmic functions, properties of logarithms. Logarithmic equations and inequalities. The logarithm function as the inverse of the exponential function.
- Trigonometric functions and equations, special angles, representation in degrees and radians.
- Area and volume formulas.

**Teaching Materials**

- Textbooks used for University admission tests (i.e., Alpha Test or similar). Students can refer to their high-school textbooks for an in-depth study and revision of the topics.

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TEACHING ELECTIVES – Physics

**Objectives**

- Provide basic knowledge on classical Physics. Passing the OFA test, students will be able to identify relevant physical laws depending on the specific application and will be able to solve simple practical problems.

**Contents**

- Dimensional units and units conversion.
- One-dimensional motion at constant speed and at constant acceleration.
- Newton's laws of motion for a material particle.
- Kinetic and potential energy.
- Pressure in fluids.
- Ideal gas law.
- Coulomb's force between two point charges and electric field of a point charge.
- Electric current.
- Electric resistance and Ohm's laws.
- Magnetic force and magnetic field: infinite rectilinear wire carrying an electric current.

**Teaching Materials**

- Textbooks used for University admission tests (i.e., Alpha Test or similar)
- Students can refer to their high-school textbooks for an in-depth study and revision of the topics.