

ANNEX 2 – PROGRAMS FOR THE ENTRY TEST

1. Basic skills

a) Verbal skills

Among the different types of verbal skills, two are those deemed most effective to determine the quality of the studies required by the present notice:

- **reading comprehension:** the candidate must be able, e.g. to identify the single passages where a fact is presented, illustrated and developed, in addition to being able to establish logical connections between the different passages and summarising the information provided in the text;

- **lexical comprehension:** the candidate must be able, e.g. to understand the similarity among lexical terms and locate the contrary of a given term.

b) Analytical skills

Among the different analytical skills, those of logical reasoning are relevant. The candidate must be able to demonstrate, e.g. their ability to understand structural sets of relations, deduce new information from them, analyse and assess arguments, decide precise and accurate inferences and identify possible causal explanations.

c) Quantitative skills

They are basically skills to understand and produce quantitative type of reasoning requiring basic mathematical knowledge and not complicated calculations. The candidate must be able, e.g. to realise quantitative comparisons, solve problems posed in quantitative terms, interpret graphs and tables...

d) Memory skills

These skills include the ability to memorise certain notions such as e.g. those acquired during a lesson or those resulting from reading a text, and the ability to recover and effectively use part of these notions for specific problems encountered or specific tasks done.

2. Maths

Basic knowledge of:

- Numerical structures, arithmetic.
- Basic algebra (common denominator, algebraic expressions, reductions).
- Equations and inequalities.
- Trigonometry.
- Geometry (lengths, surfaces, volumes); analytical geometry.
- Functions (graphical representation of elementary functions).
- Probability theory (elementary applications).

3. Physics

Basic knowledge of:

- Kinematics and dynamics
- Statics
- Thermodynamics.
- Magnetism and waves.

4. Chemistry

Basic knowledge of:

- Matter, its constitution and properties.
- The atom and subatomic particles.
- The periodic system of elements.
- Aqueous solutions and their properties.
- Representation, nomenclature and properties of some inorganic compounds.

- Main classes of organic compounds.

5. Biology

Basic knowledge of:

- Macromolecules of biological systems: nucleic acids, lipids and carbohydrates.
- Enzymes, photosynthesis and respiration.
- Cellule as basic element of life: prokaryote and eukaryote organization.
- Mitotic e meiotic division.
- How animal and vegetable organisms work, in general terms.

6. English at B2 level

At a B2 level, students are expected to be able to understand the main ideas of complex texts on both concrete and abstract topics, including technical discussions in their field of specialisation. They can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. They can produce clear, detailed texts on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.