

GUIDELINES FOR ADMISSION TO THE FIRST YEAR OF THE ENGLISH-TAUGHT MASTER'S DEGREE PROGRAMME IN MEDICINE AND SURGERY ACADEMIC YEAR 2026-2027

ROME CAMPUS

(October 2025)

(This is a translation and abridged version of the official Competition Call issued in Italian for Academic year 2026-27 - BANDO DI CONCORSO PER L'AMMISSIONE AL PRIMO ANNO DEL CORSO DI LAUREA MAGISTRALE A CICLO UNICO IN MEDICINE AND SURGERY (CLASSE LM-41) DELLA FACOLTÀ DI MEDICINA E CHIRURGIA "A. GEMELLI" - A.A. 2026-2027)

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AVAILABLE SEATS

Applications are now open for admission to the English-taught Master's Degree Programme in Medicine and Surgery at the Rome Campus of Università Cattolica del Sacro Cuore.

The number of seats available are as follows:

- **40 (forty) seats** for EU citizens living anywhere and non-EU citizens living in Italy legally (with a "permesso di soggiorno"/residence permit):

EU Ranking

- **70 (seventy) seats** for non-EU citizens living abroad (that is students requiring a student visa):

NON-EU Ranking *

**In the case of dual citizenship, of which one is Italian or of another EU country, the Italian citizenship or that of another EU country always prevails. Students with an Italian/EU passport must compete among the EU Ranking for a place on the programme.*

Students, who are unsure which group they belong to, can refer to [this document](#) for assistance.

The number of seats available may be subject to variation arising from publication by the Ministry of Universities and Research (MUR) of decrees regarding the programming of seats available for enrolment in the A. Y. 2026/2027.

Should the number of seats be reduced by a decree issued by the MUR, those at the stage of pre-enrolment or enrolment for seats no longer available, in order of ranking, will be refunded the first instalment of university fees they have paid. These candidates will then compete for any remaining seats not assigned.

REQUIREMENTS

- 1) Be at least 17-years old at the time of enrolment in the programme;
- 2) be enrolled in the final year of a High School programme; **or**
- 3) have already obtained a High School qualification.

Non-Italian High School qualifications must be obtained after **at least 12 years of global schooling** and be eligible for admission to Italian university degree programmes.

Depending on both the Italian legislation and the regulations of the respective country of origin, applicants with **less than 12 years of global schooling** need to submit:

- either an official certifying document of "Academic Eligibility"; or
- a certification of any post-High School courses, with a corresponding transcript and documentation describing the formative content of such courses.

Students who have a non-Italian High School qualification and need support in determining its eligibility for admission to an Italian university can find additional information on **Entry Requirements** [here](#).

Those who already hold a degree in Medicine obtained abroad may not apply for admission.

Students who already hold an academic qualification and those who come from other degree programmes or master's programmes are required to follow the same procedures as set out in this announcement and to take the relevant entrance exam.

APPLICATION TIMELINE

for both **EU** and **NON-EU** Rankings

Submission of application for admission to the programme	EU Ranking: From 15 October 2025 to 18 February 2026
	NON-EU Ranking: From 15 October 2025 to 18 February 2026
Submission of application for accommodations for candidates with disabilities or learning differences	EU Ranking: From 15 October 2025 to 18 February 2026
	NON-EU Ranking: From 15 October 2025 to 18 February 2026
Call to Entrance Exam	EU Ranking: 11 March 2026
	NON-EU Ranking: 11 March 2026
Entrance Exam	EU Ranking: 25 March 2026
	NON-EU Ranking: 25 March 2026
Results and Ranking of Entrance Exam	EU Ranking: Test results: from 14 April 2026; ranking: 21 April 2026
	NON-EU Ranking: Test results: from 14 April 2026; ranking: 28 April 2026
Pre-enrolment	Both Rankings: From ranking publication until 6 May 2026
Enrolment	Both Rankings: From 1 July to 4 September 2026

APPLICATION PROCEDURE

for both **EU** and **NON-EU** Rankings

- Access <https://international.unicatt.it> *;
- Select in the following order: Degree Programmes, Undergraduate Programmes, Medicine and Surgery (Rome Campus)*;
- Read the instructions and documents, then click on “Apply Now”;
- Follow the on-screen instructions: fill in the online form, submit your application, and pay the €210.00 fee to finalise the application and receive the link to an **online simulator** to prepare for the Entrance Exam. The online simulator consists of approximately 3,000 questions from past exams, included as examples. The questions covered by the written exam will not be extracted from the simulator.

Both EU Ranking and NON-EU Ranking candidates must pay the **€210.00 fee** no later than 23:59 UTC + 2 on **18 February 2026**.

Late payment will exclude candidates from the exam.

After submission, Università Cattolica International Admissions Office staff will evaluate each candidate's academic records in order to verify eligibility to access Italian University programmes. Only candidates whose eligibility has been confirmed by the International Admissions Office will be invited to take the Entrance Exam and be officially assigned to one of the applicant rankings (EU or NON-EU).

Should the candidate's High School qualification not meet the requirements for admission to the English-taught Master's degree in Medicine and Surgery, the International Admissions Office will notify the candidate by e-mail. In such a case, the €210.00 fee will not be reimbursed, as it covers administrative costs related to the evaluation of qualifications for admission and the administration of the Entrance Exam.

*** IMPORTANT:** Candidates interested in applying for admission to the Medicine and Surgery programme at the Università Cattolica Bolzano campus will find a duplicate application started for the Bolzano programme once applications open in January 2026, thus allowing them to complete the application and submit it for consideration if they wish to apply to both programmes and sit both entrance exams. Also, those candidates not having previously started an application for the Rome campus programme, but wish to apply to both programmes, will need to start either one application and will have a duplicate created for the programme at the other campus.

APPLICANTS WITH DISABILITIES AND/OR LEARNING DISORDERS

The exams referred to in this announcement are organised by Università Cattolica del Sacro Cuore taking into account the individual needs of candidates with disabilities.

Documentation attesting to disability and/or learning differences to be used for this competition must be submitted in the following ways.

1. For candidates in possession of high school qualification from an institution located in Italy or abroad belonging to a non-Italian school system

a) Candidates with disabilities who require special accommodations or additional time to carry out the Entrance Exam must submit an application (form available from the webpage for this competition on the University website - <https://international.unicatt.it>) attaching certification of disability status issued by the public health service for the area. In order to be able to provide accommodations, applications on official forms must be emailed to the International Office (Rome) no later than 23:59 UTC + 2 on 18 February 2026 (e-mail address: international.admissions-rm@unicatt.it).

b) Candidates with specific learning disorders must e-mail official certification to international.admissions-rm@unicatt.it no later than 23:59 UTC + 2 on 18 February 2026.

Candidates with disabilities are entitled to additional time not exceeding 50% of the total time specified in this announcement for the admission exam. Applicants with learning disorders are allowed a maximum of 30% extra time above the total time specified in this announcement for the admission exam.

Applications submitted according to the procedure outlined herein will be assessed by a dedicated panel convened to deal with applications for accommodations for the admission exam for candidates with disabilities or learning disorders.

The provision of accommodations for candidates with disabilities or learning disorders is not guaranteed if applications and related certification are received after 18 February 2026. Candidates must have the original documentation with them and be prepared to present them on the day of the admission exam.

Candidates from the EU and non-EU countries who are residing abroad and who wish to apply for the provision of accommodations as set out in the preceding paragraphs must submit certification of disability or learning disorders issued in the country of residence, together with a translation into Italian or English, which may be either a sworn translation or certified by the Italian Consulate or Embassy in the country of residence. The assessment panel will then decide whether the condition set out in the submitted certification is recognised by Italian law.

2. For candidates who are non-EU citizens living abroad (and only these candidates)

Applications for extra time or special accommodations may be submitted until 18 February 2026 if they include the documentation referred to in the previous points.

REMOTE EXAM SOFTWARE AND OTHER TECHNICAL REQUIREMENTS

1) Browser Compatibility

Depending on your device and operating system, browsers like **Chrome**, **Safari**, and **Edge** may work differently.

If you experience any issues during setup, you can check the **Exam Online support guide** here:

<https://support.examonline.in/portal/en/kb/articles/which-browsers-are-supported-for-the-exam>.

2) Minimum Technical Requirements for the Exam

To take the exam, your device must meet these **minimum technical requirements**:

- **Device Compatibility:** Use a **desktop, laptop, or tablet** with:
 - o A **stable internet connection**
 - o At least **8 GB of RAM**
 - o A processor equivalent to **Intel i5** or better (AMD or Mac are also acceptable)
- **Operating System:**
 - o **Windows** (version 8 or later)
 - o **macOS** (version 10 or later)
 - o **Android/iOS** (if allowed for your exam)
- **Web Browser:** Use the **latest version** of a widely supported browser like **Google Chrome** or **Safari**. For more details, visit:
https://support.examonline.in/portal/en/kb/articles/which-web-browser-can-i-use-for-the-exam#Browser_Compatibility_Matrix
- **Internet Connection:** A **stable and reliable** connection with at least **1 Mbps** speed is required.
- **Webcam and Microphone:** Your device must have a **working webcam and microphone**.
- **System Updates:** Keep your **operating system, browser, and antivirus software up to date**.
- **No VPNs or Multiple Desktops:** Only one desktop should be used, and **VPNs are not allowed** as they may interfere with the exam.

IMPORTANT: If your device does not meet these requirements, passing the initial system check **does not guarantee** that you'll be able to complete the exam. You are responsible for any issues that arise due to inadequate equipment.

3) Technical Check Before the Exam

Starting **5 days before the exam**, you will receive an email with instructions to perform a **technical check**. You must complete this check **within 24 hours before the exam**.

You'll need to test the following:

- Audio and microphone

- Webcam
- Smartphone or tablet camera
- Internet connection

If you encounter any issues, contact: convocazioni@ilmiotest.it

Include the **name of your university and the exam** in the subject line.

4) Internet & Environment

You must ensure that your **internet signal is strong and stable** in the location where you'll take the exam. If your connection fails or is unstable during the test, **you will be held responsible**.

5) Exam Day Instructions

- Follow all **technical instructions** provided by the university before and during the exam.
- Be ready to **connect on time** to ensure you start the exam with your assigned group.

Setup Process:

1. **Connect and test** all previously checked devices.
2. Use your **smartphone camera** to show your exam environment.
3. For **identity verification**, take two photos:
 - o One of a **valid ID** (as per Article 35 of D.P.R. 28 December 2000, n. 445)
 - o One of your **face**
4. You'll be asked to **scan a QR code** with your smartphone.
 - o If your phone can't scan QR codes, download a **QR code reader app**.
5. Plug your smartphone into a **power source** and place it **behind or beside you**, so it can clearly show your surroundings.

IMPORTANT: If your camera is not positioned correctly and doesn't show your exam area clearly, your exam may be **paused** until the issue is fixed.

6. After setup, **wait for the proctor's approval** before starting the exam.
 - o Wait times may vary depending on how long it takes to verify all candidates.
 - o You can contact support via the **CHATBOX** on the platform if needed.
7. Once approved, the **"Start Exam"** button will become active.
 - o Click it to begin.
 - o Carefully read the **exam instructions** (duration, scoring, platform use, behavior rules).
 - o Confirm you've read and understood the instructions before starting.

6) During the Exam

- **Stay alert to the chat:** Candidates must regularly check the **chat window** during the exam for important messages or instructions from the **examiner or proctor**.
- **Need help?** Use the **CHATBOX** (top right corner of the screen) for any **technical issues, questions, or procedural clarifications**.

7) Ending the Exam

- The exam will **automatically end** when the time runs out.
- You can also choose to **submit early** by clicking the **“Submit Exam”** button.
- After clicking, a **confirmation page** will appear showing:
 - o **Answered questions**
 - o **Flagged questions** (these will still be counted as answered)
 - o **Unanswered questions**
- You can either **confirm submission** or **go back** to review your answers.

8) Time Commitment

- The entire exam process may take up to **3 hours**, including setup and identification steps. Please plan accordingly.

IMPORTANT: Internet Disruptions

- If your connection is lost for **more than 5 minutes** due to issues with your device or internet, the university will **evaluate whether you can continue** the exam.
- If the **exam platform itself** crashes or you are **unable to start the exam** due to **verified technical issues**, the university **may schedule a make-up session**.

9) Reporting Disconnections

If you experience a **platform disconnection**, report it by **March 26, 2026, at 11:59 PM** to:

- For candidates with an **Italian qualification**:
ammissioni-rm@unicatt.it
- For candidates with a **non-Italian qualification**:
international.admissions-rm@unicatt.it

The university and the exam provider will review your case.



10) Make-Up Session

- If approved, the **make-up session** will take place on **March 31, 2026**, following the same procedures as the original exam.
- If the disconnection was **not caused by the exam platform**, you **will not be allowed** to take the make-up exam.
In that case, your score will be based on the answers submitted **up to the moment of disconnection**.

ENTRANCE EXAM STRUCTURE AND SCORING

Admission to the English-taught Degree Programme in Medicine and Surgery is determined exclusively by the results of a computer-based Entrance Exam.

The entrance exam consists of a written exam administered in computer-based mode entirely delivered in English and made up of sixty-five (65) multiple choice questions with five answer options. Candidates must choose one answer only. The topics of the multiple-choice questions are as follows:

- **2 questions** on general knowledge;
- **20 questions** on logical reasoning;
- **18 questions** on Biology;
- **12 questions** on Chemistry;
- **8 questions** on Physics and Mathematics;
- **5 questions** on ethics and religious culture.

The programmes relating to questions of scientific culture are contained in Annex A. To prepare questions on ethics and religious culture, candidates can consult the texts recommended by Università Cattolica del Sacro Cuore (list available on the University website).

Candidates have a maximum time of **65 minutes** to complete the entrance exam.

The exam is uniquely and automatically linked to the candidate who has taken it via the PIN provided at identification, which is matched with the code identifying the individual exam, generated randomly when the exam is started.

There is a maximum score of 65 (sixty-five) points for the exam, assigned as follows:

- **1 point** for each correct answer;
- **0.25 point** is taken off for each incorrect answer;
- **0 points** for any answer not given.

The minimum score required to be eligible for the degree programme is **no less than 20 points out of 65**.

In the event of a tie in the final ranking, the score for logical reasoning will be used to rank tied candidates. In the case of a further tie, the score for the Biology questions will be used to rank the tied candidates. In the case of a further tie, the score for the Chemistry questions will be used to rank the tied candidates. In the case of a further tie, the score for the Physics and Mathematics questions will be used to rank the tied candidates. In the case of a further tie, the score for the general knowledge questions will be used to rank the tied candidates. In the case of a further tie, the score for the ethical and religious culture questions will be used to rank the tied candidates. In the case of a further tie, the younger candidate will prevail.

Those candidates who score a pass in the Entrance Exam for enrolment on the degree programme but do not score a minimum of 40% for the Biology section (a minimum of 7 out of 18 questions), the Chemistry section (a minimum of 5 out of a possible 12), the Physics section (a minimum of 2 out of a

possible 4) and the Mathematics section (a minimum of 2 out of a possible 4) will be assigned additional training obligations (or **OFA** – Obblighi Formativi Aggiuntivi) to fulfil. These candidates will have to attend intensive remedial courses organised by the university. These OFA must be fulfilled within the first year of the programme: students who do not cover the remedial work within the first year as set out above will not be able to take the exams scheduled for the second year of the programme.

SCHEDULE AND VENUES

The Entrance Exam for both the EU and NON-EU Rankings will be held remotely on **25 March 2026** with the use of a proctoring system, which allows for candidates to take the exam from home with the support of a control platform called Proctor Exam, which is activated from the moment of identification of the candidate until the end of the exam. Candidates will be allowed to choose their preferred timeslot for taking the Entrance Exam. The instructions on how to indicate this preference and take the exam will be e-mailed to each candidate starting from 11 March 2026. The general list of exam invitations will also be published online at <https://roma.unicatt.it> and <https://international.unicatt.it> on 11 March 2026.

The University reserves the right to change dates, times, and test locations, as well as to increase the number of test sites for organisational reasons if necessary.

On the day of the entrance exam, candidates must show the following:

- A valid ID document;
- Receipt of payment of the €210 fee made before the deadline;
- Any original documentation certifying disability and/or learning differences declared when registering for the competition.

The rules of the Entrance Exam forbid the use of mobile phones, calculators, tablets, online-enabled devices and the consultation of printed books and/or manuscripts and notes. They also forbid leaving the room after completing the identification procedure, as well as using extra software tools or devices such as a second monitor during the test.

PUBLICATION OF THE RANKINGS

The results of the Entrance Exam will be published online at <https://roma.unicatt.it> and <https://international.unicatt.it>, respectively:

a) For the **EU Ranking**: as of **21 April 2025**

b) For the **NON-EU Ranking**: as of **28 April 2025**

Candidates who are positioned high enough in the ranking to be included in the number of seats available for the relevant group of applicants are offered a place on the programme. From the same day onwards, candidates can view their exam via the dedicated platform to access documentation online by following the instructions communicated to candidates via the University website.

All candidates having completed the exam will be invited as of **14 April 2025** to review their marked exam prior to the publishing of the ranking .

PAYING THE PRE-ENROLMENT FEE

EU Ranking candidates who are assigned a seat on the programme may confirm their position by completing their pre-enrolment and by paying the deposit and first instalment of tuition and university fees in the amount of €4,000.00 no later than **6 May 2026**.

Those in possession of a bank account/credit card in Italy are invited to use the PagoPA payment system as an alternative to the wire transfer (wire transfer details will be sent out via email with the invitation to pre-enrol).

NON-EU Ranking candidates who are assigned a seat on the programme may confirm their position by completing their pre-enrolment and by paying the deposit and first instalment of tuition and university fees no later than **6 May 2026**.

Payment of the €4,000.00 fee will be done using Flywire, which will allow the candidate to select, based on the country of origin of the payment, among different payments methods, such as credit card, bank/ wire transfer, other directly via the Flywire portal.

E-mail the following to international.admissions-rm@unicatt.it:

- Receipt of payment of first instalment of tuition fees;
- For those of the Catholic religion: certificate of baptism.
- For those who are not of the Catholic religion: certificate of interview with a Pastoral Assistant. This interview must be carried out within three months of the start of lessons.

ENROLMENT PROCEDURE

Starting from 1 July 2026 and no later than 4 September 2026 all admitted students are required to finalise their enrolment by submitting the following documents online:

- Enrolment Form

Applicants will be given via email instructions on how to download this document.

- A copy of the final High School Diploma;
- Payment receipt of the €4.000 Enrolment Fee;
- A digital photo if not previously uploaded during pre-enrolment
- A copy of the student's ID document / ID Card / Passport;
- For non-EU students that were already living in Italy at the time of applying for the test - A copy of a valid residence permit.

Additional documents:

- For non-EU students that were living abroad at the time of applying for the test - A valid Visa for Study-related reasons (Type D), issued by an Italian Embassy / Consulate.
- For all students with a non-Italian High School Diploma – A copy of the final High School Diploma; and a Dichiarazione di Valore (Statement of Validity) that must be issued by the Italian Embassy / Consulate in the Country where the Diploma was awarded (if applicable).

The "Dichiarazione di Valore" is an official document issued by the Italian Embassies / Consulates that offers a description of a student's Diploma and indicates its validity in the awarding Country for academic or professional purposes, as well as the legal status of the awarding institution. All international students are encouraged to apply for it after receiving confirmation of their admission to the Programme.

- A Codice Fiscale (Fiscal Code / Italian Tax Code) - only if already available; otherwise, further instructions will be provided via email on how to obtain a Fiscal Code upon arrival.

The "Codice Fiscale" is an Italian tax identification number issued by the Government offices or by Italian Embassies / Consulates, consisting of a 16-character alphanumeric code that is provided free of charge. It is needed to identify both Italian nationals and foreign residents and authorize any payment, contract or financial operation.

- Certificate of vaccination for Hepatitis B
- Certificate of anti-tuberculin Mantoux test, performed no more than 3 months before submission

The medical certificates may be submitted within 60 days from the completion of the Enrolment procedure.



- An English Language Certification, corresponding to the following types and respective minimum scores:

Certificate	Minimum score
ACADEMIC IELTS	6.0
TOEFL IBT	80
TOEFL Computer-based	213
TOEFL Paper-based	550
CAMBRIDGE ESOL	FCE/First Certificate, with Grade B

Applicants whose main language of instruction in High School was English do not need to submit this certificate. In such cases, applicants need to show official proof of the language used in their High School studies.

For additional information about the enrolment and the visa application processes, please see our [dedicated section online](#).

ALLOCATION OF UNASSIGNED PLACES

Students failing to enrol by the deadline given for each stage of the procedure as set out in these guidelines will be deemed to have withdrawn, in which case their place in the programme will be given to the next candidate in the ranking.

Università Cattolica reserves the right to proceed with the assignment of any vacant places via notices published online advising that the rankings have moved up (website: <https://roma.unicatt.it>). These notices will also set out the methods to be used for calling students and assigning places, and the terms of acceptance of unfilled places.

The rankings referred to in these guidelines will be closed at the conclusion of the teaching activities of the first semester so that students can reach the minimum compulsory attendance to be able to take individual exams. Any places not filled at the closing date of the rankings will not be assigned by scrolling down the ranking, including cases of places that may have become available due to a withdrawal after enrolment.

PROCEDURE FOR WITHDRAWAL FROM THE PROGRAMME AFTER ENROLMENT

Students intending to withdraw from their studies after enrolment must submit an official application for withdrawal form with a €16.00 tax stamp. The application must either be delivered directly to Polo Studenti (Rome Campus) during office hours or sent by registered post with delivery receipt to: Università Cattolica del Sacro Cuore – Polo Studenti (Roma), Largo F. Vito 1, 00168 Rome.

REIMBURSEMENT OF THE FIRST INSTALMENT OF TUITION FEES AFTER WITHDRAWAL

- The €210 Application Fee is not refundable under any circumstance.
- Should an application for reimbursement of the pre-enrollment fee (amounting to €4.000) be made, it will be assessed by a special panel, which meets in October each year. Applications must be submitted within 14 days of payment of the fee.
- Non-EU students living abroad who have officially been denied a D Entry Visa and who submit their applications for reimbursement by their respective enrolment deadline, as indicated in their individual instructions, will have their requests examined by panel only if properly documented.

SPECIAL CONSIDERATIONS FOR MINORS

Admitted students who are still 17 years old at the time of enrolment and at the beginning of the programme, per [Italian Law](#), will need to have a legal guardian resident in Italy until the student turns 18. The name and address of the guardian will have to be given to the Italian consular service upon application for the study visa. The visa will not be released to a minor without legal guardianship in Italy. Such guardianship cannot be provided by the University and needs to be found independently by the student's family. Families who do not have contacts in Italy may refer to the [local Italian authorities](#) responsible for the rights of minors.

CONTACT DETAILS

Università Cattolica del Sacro Cuore
International Admissions Office
Largo F. Vito 1, 00168 Rome

Email contact for general inquiries about the programme, or for candidates in the process of applying:
international.inquiry@unicatt.it

Email contact for candidates who have submitted their application:
international.admissions-rm@unicatt.it

ANNEX "A"

Scientific knowledge question schedule

1) **BIOLOGY:** The chemistry of living beings. The biological importance of weak interactions. The organic molecules present in living organisms and their respective functions. The role of enzymes. The cell as the basis of life. Cell theory. Cell size. The prokaryotic and eukaryotic, animal and plant cell. Viruses. The cell membrane: structure and functions - transport across the membrane. Cell structures and their specific functions. Cell cycle and cell reproduction: mitosis and meiosis - chromosomal set and chromosomal maps. Bioenergetics. The energy currency of cells: ATP. Redox reactions in living things. Energy processes: photosynthesis, glycolysis, aerobic respiration and fermentation. Reproduction and Inheritance. Life cycles. Sexual and asexual reproduction. Mendelian genetics: Mendel's laws and their applications. Classical genetics: chromosomal theory of inheritance - models of inheritance. Molecular genetics: DNA structure and duplication; the genetic code; protein synthesis. The DNA of prokaryotes. The structure of the eukaryotic chromosome. Genes and the regulation of gene expression. Human genetics: transmission of mono and polyfactorial characters; autosomal and X-linked hereditary diseases. Biotechnologies: recombinant DNA technology and its applications. Inheritance and the environment. Mutations. Natural and artificial selection. Evolutionary theories. The genetic basis of evolution. Anatomy and Physiology of animals and humans. Animal tissues. Anatomy and physiology of human systems and apparatuses and related interactions. Homeostasis.

2) **CHEMISTRY:** The constitution of matter: the states of aggregation of matter; heterogeneous systems and homogeneous systems; compounds and elements. Laws of perfect gases. The structure of the atom: elementary particles; atomic number and mass number, isotopes, electronic structure of the atoms of the various elements. The periodic system of elements: groups and periods; transition elements; periodic properties of the elements: atomic radius, ionization potential, electron affinity; metallic character. Relations between electronic structure, position in the periodic system and properties of the elements. The chemical bond: ionic bond, covalent and metallic bond. Bond energy. Polarity of the bonds. Electronegativity. Intermolecular bonds. Fundamentals of inorganic chemistry: nomenclature and main properties of inorganic compounds: oxides, hydroxides, acids, salts. Chemical reactions and stoichiometry: atomic and molecular mass, Avogadro's number, concept of mole and its application, elementary stoichiometric calculations, balancing of simple reactions, the different types of chemical reactions. Solutions: solvent properties of water, solubility, the main ways of expressing the concentration of solutions. Equilibria in aqueous solution. Elements of chemical kinetics and catalysis. Oxidation and reduction: oxidation number, concept of oxidant and reducing agent. Balancing of simple reactions. Acids and bases: the concept of acid and base. Acidity, neutrality and basicity of aqueous solutions. The pH. Hydrolysis. Buffer solutions. Fundamentals of organic chemistry: bonds between carbon atoms, crude and structural formulas, the concept of isomerism. Aliphatic, alicyclic and aromatic hydrocarbons. Functional groups: alcohols, ethers, amines, aldehydes, ketones, carboxylic acids, esters, amides. Elements of nomenclature.

3) PHYSICS: Measurements: direct and indirect measurements, fundamental and derived quantities, physical dimensions of the quantities, knowledge of the metric system and the CGS, Technical (or Practical) (ST) and International (SI) Systems of Units, units of measurement (names and relationships between fundamental and derived units), multiples and submultiples (names and values). Kinematics: kinematic quantities, various motions with particular regard to uniform and uniformly accelerated rectilinear motion; uniform circular motion; harmonic motion (for all motions: definition and relations between the connected kinematic quantities). Dynamics: vectors and vector operations. Forces, moments of forces with respect to a point. Moment of a pair of forces. Vector composition of forces. Definitions of mass and weight. Gravity acceleration. Density and specific weight. Law of universal gravitation, 1st, 2nd and 3rd principles of dynamics. Work, kinetic energy, potential energies. Principle of energy conservation. Pulse and momentum. Principle of conservation of momentum. Fluid mechanics: pressure and its units of measurement (not only in the SI system). Archimedes' principle. Pascal's principle. Stevino's law. Thermology, thermodynamics: thermometry and calorimetry. Specific heat, heat capacity. Mechanisms of heat propagation. Changes of state and latent heat. Laws of perfect gases. First and second law of thermodynamics. Electrostatics and electrodynamics: Coulomb's law. Electric field and potential. Dielectric constant. Capacitors. Capacitors in series and in parallel. Direct current. Ohm's law. Kirchhoff's principles. Electrical resistance and resistivity, electrical resistances in series and in parallel. Work, Power, Joule effect. Generators. Electromagnetic induction and alternating currents. Effects of electric currents (thermal, chemical and magnetic).

4) MATHEMATICS: Numerical sets and algebra: natural, integer, rational, real numbers. Sorting and comparison; order of magnitude and scientific notation. Operations and their properties. Proportions and percentages. Powers with integer exponent, rational) and their properties. Radicals and their properties. Logarithms (base 10 and base e) and their properties. Basics of combinatorics. Algebraic expressions, polynomials. Notable products, nth power of a binomial, factorization of polynomials. Algebraic fractions. First and second degree algebraic equations and inequalities. Systems of equations. Functions: basic notions on functions and their graphic representations (domain, range, sign, maximum and minimum, increase and decrease, etc.). Elementary functions: integer and fraction algebraic, exponential, logarithmic, goniometric. Compound functions and inverse functions. Goniometric equations and inequalities. Geometry: polygons and their properties. Circumference and circle. Measurements of lengths, surfaces and volumes. Isometries, similarities and equivalences in the plane. Geometric places. Angles measurement in degrees and radians. Sine, cosine, tangent of an angle and their notable values. Protractor formulas. Resolution of triangles. Cartesian reference system in the plane. Distance of two points and midpoint of a segment. Equation of the line. Conditions of parallelism and perpendicularity. Distance of a point from a line. Equation of the circumference, parabola, hyperbola, ellipse and their representation in the Cartesian plane. Pythagorean theorem. Euclid's theorems (first and second). Probability and statistics: frequency distributions according to the type of character and main graphical representations. Concept of random experiment and event. Probability and frequency.