

CALL FOR ADMISSION TO THE FIRST YEAR
RESERVED FOR EUROPEAN AND NON – EU CITIZENS REGULARLY RESIDENT IN ITALY

Master's Degree Programme in Medicine and Surgery (LM-41)
A. Y. 2022/2023

1. GENERAL INFORMATION

This document is the English translation of the call for admission issued by the Rector's Decree on 15th December 2021, no. 615 for the Master's Degree Programme in Medicine and Surgery. The Italian version is the official document regulating this call. The document written in English has no legal value. In case of conflicting issues between the English and the Italian version, the Italian version succeeds.

Admission to the Master's Degree Programme in Medicine and Surgery, entirely taught in English, is regulated by a selective procedure based on the following available places as indicated in the following:

60 places available for Italian citizens, EU citizens wherever they reside and non-EU citizens regularly resident in Italy (art. 39(5) of Legislative Decree no. 286/1998, as subsequently amended and supplemented).

The number of available places may vary in accordance to the Decree of the Ministry of University and Research, pursuant to the provisions of Law n. 264, August 2nd, 1999. The Decree will be published on the website <http://www.unicampus.it/eng/medicine-and-surgery/admissions>. In case of a reduction of the number of available places as a result of the ministerial assignment, the candidates enrolled on the basis of the procedures set out in this call for admission will forfeit and compete for any available places in the modalities provided for eligible candidates.

The selective procedure consists in a **written test to be held in Rome, scheduled for 22nd March 2022**. The time and location of the test, along with the list of admitted candidates and assigned sectors, will be published by 16th March on the University's website on www.unicampus.it/ammissioni. The University reserves the right to modify the terms of this procedure should it become necessary for organisational reasons in event of 'Force Majeure'. If the test is postponed, the University may extend and/or reopen the deadline for the online registration.

The first 2 (two) winning candidates in the merit ranking with a yearly income (ISEE Diritto allo Studio) below € 60.000¹ are beneficiaries of **2 (two) scholarships** equal to 100% of the tuition fee, funded by Campus Bio-Medico University of Rome and reserved for Italian and EU candidates aimed at the admission to the Master's Degree Programme in Medicine and Surgery for the academic year 2022/2023.

The candidates, beneficiaries of the 2 (two) scholarships, under penalty of forfeiture, must proceed to the formal acceptance of the scholarship by 31st March 2022, according to the terms in the following article 7 and note 3. The requirements for maintaining the scholarship in the years following the first year of the course are specifically indicated in annex A to this call for admission.

It is the candidate's responsibility to check all notices regarding the competition procedure published on the University's website at <http://www.unicampus.it/eng/medicine-and-surgery/admissions>, in the sections dedicated to admission to the Degree Programmes of interest.

An additional Master's Degree Programme in Medicine and Surgery (LM-41) – *Medical Technology (MedTech)* - is in the process of being accredited. Candidates in the final ranking list, as in article 2, may also compete with the score obtained in the Medicine and Surgery test for admission to the Master's Degree Programme in Medicine and Surgery (LM-41) - *Medical Technology* - by expressing this preference in the online application form for the admission test of this call for admission. The University reserves the right to hold a further admission test for

¹ To this purpose, when submitting the online application, a copy of ISEE Diritto allo Studio 2022 or alternatively ISEE Diritto allo Studio 2021 must be provided.

Medicine and Surgery, if there are still valid available places for both courses. The University decides to hold a further admission test only after the accreditation of the new course “MedTech” and the outcome of the enrolment of candidates who have valid available places to the new course. The admission test (if any) will be held in September 2022 in Rome, **upon notice published by 30th July 2022** on the website www.unicampus.it/ammissioni. Simultaneously, the University will publish the deadlines for the submitting applications, the location and time of any further admission test, as well as the number of remaining places on each of the two Medicine and Surgery courses.

Contacts:

- technical assistance for the online registration: use the link *technical support* given at the bottom of the registration form;
- assistance with the admission procedure: ammissioni@unicampus.it, (+39) 06.22541.8121/9255;
- assistance with the enrolment procedure: segreteriastudenti@unicampus.it, (+39) 06.22541.9044/9042/9043/9047/9074).

2. ENROLMENT REQUIREMENTS

The only candidates who can participate in the enrolment procedure are European citizens and NON - EU citizens regularly resident in Italy (art. 39(5) of Legislative Decree no. 286/1998, as subsequently amended and supplemented), who have obtained or will obtain in the academic year 2021/2022 the High School Diploma or another valid qualification obtained abroad to access to University (in accordance with the provisions published annually by the Ministry of Education, University and Research on the website www.studiare-in-italia.it/studentistranieri).

The only valid academic qualification is the one obtained after at least 12 years of schooling. Candidates who have obtained an academic qualification from a foreign school system are required to provide a Declaration of Value (*Dichiarazione di Valore*) issued by the Italian diplomatic representations or, alternatively, a certificate issued by the Information Centre on Academic Mobility and Equivalence (CIMEA).

In case the local school system only provides for 11 or 10 years of schooling, the academic qualification is only valid if integrated with one or two years of university (in this case the candidate must prove to have passed successfully all the exams required for the years attended). The *Foundation Year* course at University Campus Bio-Medico of Roma is also recognised, for this purpose, but only if the candidate has passed the relevant exams.

Applicants who participate in this Call for Admission violating the citizenship requirements set forth in this article shall be excluded from the procedure.

Amission to Master’s Degree Programme in Medicine and Surgery requires the knowledge of English, at least B2 level of CEFR attested by one of the language certifications listed in Annex B, which is part of this call for admission. Following the admission test held on 22nd March 2022 a **PROVISIONAL MERIT RANKING** will be published, in accordance with the provisions of article 6 below, on 24th March 2022. From 20th April 2022 to 20th June 2022, 1.00 p.m. (CET) the **winning or eligible** candidates in the *provisional merit ranking* must re-access the online application platform with the credentials in their possession in order to upload in the appropriate field the language certification indicated in Annex B of this call for admission. Statements of equivalence will not be accepted, even if issued by the certifying bodies listed in Annex B, nor will certificates of attendance or mere passing of the test linked to the issue of the language certificate.

No later than 11th July 2022, the **FINAL MERIT RANKING** will be published, with only the names of those candidates who have produced an appropriate language certificate within the terms indicated above.

Candidates who did not upload the language certification or who uploaded a different certification from those strictly indicated in Annex B, will be excluded from the enrolment procedure as described in article 7 below.

In the event of extension and/or reopening of the deadline for online registration for this call for admission procedure, **the deadline for submitting the language certification will remain unchanged for all candidates** (even if the date of the written test is postponed) and only the final merit ranking will be issued. Therefore, if the date of the written test is later than the deadline for submitting the language certification candidates who do not produce

the certificate by the deadline and according to the terms described above will not be admitted to the test.

The registration fee for the admission procedure is not refundable for any reason and there will be no reimbursement of the tuition fee paid except in cases expressly provided for in this Call.

Applicants are therefore invited to obtain on time a language certificate among those listed in Annex B. It is the candidate's own responsibility to verify that the provided certification is one of those listed in Annex B.

3. CANDIDATES WITH LEARNING DISABILITIES (SLD) AND/OR DISABILITIES

Candidates with invalidity and disabilities, pursuant to Law 104/92, and candidates with learning disabilities, pursuant to Law no. 170/2010, who require special conditions or special aids for the examination, must explicitly insert their request in the online application. They have to attach the related certification proving the disability or SLD level, issued in the country of residence and accompanied by a sworn translation in Italian or English that specifies the essential elements regarding the aforementioned benefits in order to enable the University to prepare accordingly to guarantee an equal participation in the tests. **The University reserves the right to verify the candidate's certification and undertakes to inform the candidate, in due time for the test, of the aids granted. Only certifications produced in Italian or English will be considered.**

4. REGISTRATION PROCEDURE

The application form must be submitted exclusively online by clicking on the appropriate button on the website <http://www.unicampus.it/eng/medicine-and-surgery/admissions> from **20th December 2021 to 11th March 2022 by 1 P.M. (CET).**

The registration procedure requires:

1. registration on the registration portal and creation of credentials (username and password);
2. confirmation of registration on the portal through the link that the candidate receives by email;
3. access to the portal with candidate's credentials and filling in the application form **20th December 2021 to 11th March 2022 by 1 P.M. (CET);**
4. online payment, by credit card, of the registration fee for the admission test of **€ 170.00** (one hundred and seventy/00) **no later than 11th March 2022 by 1 P.M. (CET).**

By following steps from point 1 to 4, the registration procedure is considered completed. Once all the mandatory fields of the registration form have been completed, the payment of the registration fee is automatically enabled.

The candidate receives an email with the link to confirm the created credentials to access the portal and an email confirmation of successful registration to the admission test if the candidate has correctly completed the application form and made online payment.

The application is submitted only if the candidate has received the confirmation of the online payment. At this point, the registration can no longer be modified.

An application that has not been submitted is in any case considered incomplete and does not allow the participation in the competition. The registration fee for the test is not refundable under any circumstances.

It is the candidate's responsibility to check the correct insertion of the data requested by the online registration platform. The insertion of untruthful or incorrect data, or failure to enter the same will result in exclusion from the procedure and from the final ranking and loss of the right to enrolment or cancellation of the same. The University Campus Bio-Medico of Rome reserves the right to carry out the necessary checks on the declarations made by the candidate.

The list of **candidates admitted to the written test** will be published on the University website at <http://www.unicampus.it/eng/medicine-and-surgery/admissions> by **16th March 2022**.

A simulator of the written admission test will be available on the registration platform. The candidates may use the simulator for practice purposes.

5. WRITTEN ADMISSION TEST

The written admission test (entirely in English) lasts **1 hour and 40 minutes and consists of 80 multiple-choice questions as follows: Logic (50 questions), Biology (10 questions), Chemistry (10 questions), Mathematics and Physics (10 questions)**.

The syllabuses for each discipline are contained in Annex C to this call for admission.

Points are assigned as follows:

1 point for each correct answer;

-0,2 point for each incorrect answer;

0 points for each not given answer.

The highest achievable score in the written test is a maximum of 80 points.

During the test, candidates are not allowed to use any electronic device, or any other types such as calculators, tablet, internet enabled devices, printed books, manuscripts or notes.

Each candidate has the right to finish the test before the maximum time expires as well as to use all the minutes available. Therefore, **a candidate who wants to leave the venue in the first 90 minutes must hand in the test and leave the location**. The delivery of the test will not be allowed in the last 10 minutes of the scheduled time.

6. ADMISSION TO THE MASTER'S DEGREE PROGRAMME

Candidates will be accepted to the Master's Degree Programme in Medicine and Surgery on the basis of the total achieved score, in eightieth, which will determine the position in the final merit ranking.

In the event of an equal final score, the candidate with the highest score in the Logic section prevails; in case of a further tie, the candidate who obtained a higher score in Biology, Chemistry, Mathematics and Physics will prevail; in the event of a further tie, the place will be assigned to the younger candidate.

The **provisional merit ranking**, in order of score is issued by Decree of the Rector and published on the university website on <http://www.unicampus.it/eng/medicine-and-surgery/admissions> by **24th March 2022**.

The first 60 candidates on the merit ranking are declared *winners*, candidates above the 60th position who have a score of 16/80 or higher are declared *eligible*, candidates with a score of less than 16/80 are declared *non-eligible*.

Each candidate can verify the position in the ranking by means of the "username" code assigned during the admission test.

Candidates who have not answered correctly at least half of the questions in a single discipline of the admission test (at least 5 in Biology, 5 in Chemistry and 5 in Mathematics and Physics) **are admitted with an Additional Learning Obligations (obbligo formativo aggiuntivo - OFA)**. Thence, those students are expected to attend a specific course aimed at fulfilling the training for that specific discipline before taking the reference exam provided for in the Study Plan, and in any case within the first year. The fulfilment of the OFAs will be verified by the professors of the courses. From 30th March 2022 onwards each candidate will be able to access the website www.unicampus.it/ammissioni with the username and password previously received and consult the written test seeing any Additional Learning Obligations (OFA).

7. ENROLMENT PROCEDURE

PHASE I

Following the publication of the *provisional merit ranking*, the **winning candidates** must proceed with the enrolment procedure – Phase I **from 28th March 2022 to 6th April 2022** following the steps below:

- a) create the student's credentials on the University platform by following the "enrolment instructions" published on the following website www.unicampus.it/ammissioni;
- b) access the reserved area of the website with student's credentials and download the MAV form for the payment of the first instalment of the tuition fee;
- c) make the payment of € 8.000,00 (eight thousand/00) equal to the amount of the first tuition fee^{2;3} using the pre-filled debit note (MAV) referred to in (b) above;
- d) send or deliver the payment receipt of the first instalment of the first tuition fee (letter c) to the Student Services Office by fax to (+39) 06.225411939 or by certified mail to segreteria.studenti@postasicura.unicampus.it **no later than 6th April 2022**.

The winning candidate who does not carry out all the steps referred to in the aforementioned points (a), (b), (c), and (d) by 6th April 2022 shall be automatically deemed withdrawn.

From 7th April 2022 eligible candidates, will compete for any remaining places (not allocated to winning candidates by 6th April 2022) following the merit ranking order.

Eligible candidates will be informed of the allocation of any remaining places by the Student Services Office via certified email (segreteria.studenti@postasicura.unicampus.it) to the email address provided by each candidate on the application form during the admission procedure. **It is the candidate's own responsibility to ensure receipt of communications from the University on time.**

The number of candidates recalled at each scrolling, as a result of non-enrollment or withdrawals, is published on the website www.unicampus.it/ammissioni.

Eligible candidates, **within and no later than 24 hours following the email sent by the Student Services Office, may proceed with the enrolment procedure** carrying out all the steps referred to in the aforementioned points (a), (b), (c), and (d). The eligible candidate who, after being regularly notified, does not respect the above-mentioned deadline of 24 hours after the email sent by the Student Services Office, is automatically deemed withdrawn.

PHASE II

By **11th July 2022** upon verification of submission of language certifications, the *final ranking list* as stated in article 2 of this call for admission, will be published by the Rector's Decree on the website www.unicampus.it/ammissioni.

Candidates included in the *final ranking* who have already completed the enrolment PHASE I, must proceed to enrolment PHASE II **from 11th July 2022 and no later than 26th July 2022 at 1.00 p.m. (CET)**, carrying out all the following steps:

² The amount of the second instalment of the tuition fee, equal to € 5,000.00 (five thousand/00), must be paid by 26th January 2023; the amount of the third instalment of the tuition fee, equal to € 5,000.00 (five thousand/00), must be paid by 13th April 2023.

³ I Candidates awarded with one of the scholarships referred to in point 1 of this call for **admission must, under penalty of withdrawal, formally accept the scholarship by 31st March 2022 in accordance with the procedure that will be communicated to them by the University** with exemption from payment of the tuition fee. In case the awarded candidates do not accept the scholarship by 31st March 2022, they will forfeit their right to the scholarship but can still proceed with the ENROLMENT by 20th April 2022 according to the procedure set out in point 7 of this call for admission, referring to all successful candidates; scholarships not accepted will be awarded in order of ranking, with a possible refund of the first instalment to candidates who have attached the *ISEE Diritto allo Studio* 2021 or 2022 below € 60.000,00 (sixtythousand/00) to the online application and who have already enrolled.

- e) access the student's reserved area on the University platform and **download the MAV form for the payment of the regional tax for the Right to higher education**, with the amount of € 140.00 (one hundred and forty/00)⁴ and the enrolment form;
- f) send or deliver to Student Services Office by fax to (+39) 06.225411939 or by certified mail to segreteria.studenti@postasicura.unicampus.it **no later than July, 26 2022 the following documents:**
- the payment receipt of the regional tax for the Right to higher education;
 - the enrolment form duly completed and signed in all its parts;
 - a self-declaration of achievement of the Diploma of Higher Secondary Education with indication of the grade, year and Institute that issued it, with a declaration of value in case of foreign academic qualifications;
 - the withdrawal from studies (art. 142 of R.D. 31 August 1933 n. 1592) or no impediment to transfer in case of enrolment at another University

Enrolment is considered conditional until the submission of the documentation referred to in letters e) and f) by 1.00 p.m (CET) on 26th July 2022. In case of missing documentation on 26th July 2022 by 1:00 pm (CET), such candidates are automatically considered to have withdrawn from the competition and forfeit their enrolment.

From 29th July 2022 eligible candidates compete for any remaining places (not allocated to winning candidates by 26th July 2022) according to merit ranking order.

Eligible candidates will be informed of the availability of places by the Student Services Office via certified email to the email address provided by each candidate on the application form during the admission procedure. **It is the candidate's own responsibility to ensure the receipt of communications from the University within the appropriate time.**

The number of candidates recalled at each scrolling, as a result of non-enrollment or withdrawals, is published on the website www.unicampus.it/ammissioni.

Eligible candidates, **within and no later than 24 hours following the sending of the email by the Student Services Office must proceed with the enrolment procedure** carrying out all the steps referred to in the aforementioned points (e) and (f). The eligible candidate who, after being regularly notified, does not respect the above-mentioned deadline of 24 hours following the sending of the email by the Student Services Office is automatically deemed withdrawn.

In reference to all phases of the enrolment process set forth in this article 7, there shall be no refund of the tuition fee except from following cases:

- candidates who do not obtain the High School Diploma in the academic year 2021/2022;
- candidates, enrolled under conditions, who, as a result of the reduction in the number of places assigned annually by the Ministry for Education, University and Research, cease to be enrolled;
- candidates awarded with the scholarship financed by the Campus Bio-Medico University of Rome for the academic year 2021/2022, taken over the withdrawal of exempted candidates.

⁴ The amount of the regional tax for the Right to higher education may vary according to the deliberations of the Lazio Region.

8. SUMMARY OF THE TERMS OF ADMISSION PROCEDURE

The main terms of the procedure are summarised below. For all stages of the procedure, the candidate shall rely on the extended points of the call for admission.

ASSET	TERMS AND MODALITIES	REFERENCE IN THE CALL
Online registration procedure for admission	From 20/12/2021 to 11/03/2022, 1.00 p.m. CET on www.unicampus.it/ammissioni	Article 4
Publication of admitted candidates to the written test and logistics	within 16/03/2022 on www.unicampus.it/ammissioni	Article 1 and 4
Written admission test	Rome, 22/03/2022 (time and location within 16/03/2022 on www.unicampus.it/ammissioni)	Article 1 and 5
Publication provisional merit ranking	within 24/03/2022 on www.unicampus.it/ammissioni	Article 2 and 6
Enrolment – PHASE I	from 28/03/2022 to 06/04/2022	Article 7
Scholarship acceptance	Within 31/03/2022	Article 7 and note 3
Visualization of the admission test and OFA	from 30/03/2022 onwards on www.unicampus.it/ammissioni	Article 6
Scrolling of the provisional merit ranking	from 07/04/2022 onwards on www.unicampus.it/ammissioni	Article 7
Upload language certification strictly indicated in Annex B	NB only for winning and eligible candidates in the <i>esclusivamente provisional</i> merit ranking From 20/04/2022 to 20/06/2022 re-accessing on the online application platform with the own credentials	Article 2 and Annex B
Publication final merit ranking	within 11/07/2022 on www.unicampus.it/ammissioni	Article 2 and 7
Enrolment – Phase II (with payment of the regional tax and sending the high school diploma documentation)	from 12/07/2022 to 26/07/2022, 1 p.m. (CET)	Article 7
Scrolling of the final merit ranking	from 29/07/2022 onwards on www.unicampus.it/ammissioni	
Payment of II instalment of the tuition fee	within 26/01/2023	
Payment of III instalment of the tuition fee	within 13/04/2023	

REQUIREMENTS TO RETAIN THE SCHOLARSHIP

Students who have been awarded the scholarship referred to in point 1 of this Call for Admission may retain the benefit in the years following the first one within the legal duration of the course if **by 30th October 2022** of each year:

- a) they have acquired at least the same number of Academic Credits - ECTS (European Credit Transfer System - Credito Formativo Universitario - CFU) as shown in the table hereunder:

Course year	no. Academic credits (ECTS/Obtainable Academic Credits)
II	42/53
III	106/123
IV	169/184
V	209/233
VI	272/292

- b) they have obtained a grade point average (GPA) in the exams relating to the total credits obtained at least equal to **27/30**.

In the event of forfeiture, revocation or withdrawal by students who have been awarded the scholarship, the remaining places will be allocated to those students who have obtained the highest number of ECTS with the highest average in the year preceding the year of allocation. This procedure, which may eventually be activated with a specific call for applications, is reserved for students enrolled at Campus Bio-Medico University of Rome in the academic year 2022/2023 who have an annual income (ISEE Diritto allo Studio) below € 60,000.00 (sixty thousand/00).

Certifier	Level	English certifications for the 4 skills
Cambridge Assessment English	C2	Certificate of Proficiency in English (CPE)
	C1	Certificate in Advanced English (CAE)
	B2	First Certificate in English (FCE)
	B2 and higher	Linguaskill
City and Guilds (Pitman)	C2	Level 3 Certificate in International ESOL Diploma Mastery C2
	C1	Level 2 Certificate in International ESOL Diploma Expert C1
	B2	Level 1 Certificate in International ESOL Diploma Communicator B2
Edexcel / Pearson Ltd	C2	PTE General Level 5 Proficient
		PTE Academic Score ≥ 85
	C1	PTE General Level 4 Advanced
		PTE Academic Score 76-84
	B2	PTE General Level 3 Upper Intermediate
		PTE Academic Score 59-75
IELTS	C2	IELTS band 8.5 - 9.0
	C1	IELTS band 7.0 - 8.0
	B2	IELTS band 5.5 - 6.5
TCL Trinity College London	C2	Integrated Skills in English (ISE) IV
	C1	Integrated Skills in English (ISE) III
	B2	Integrated Skills in English (ISE) II
TOEFL ETS	C1	TOEFL score 110-120
		TOEFL iBT at least score 95
	B2	TOEFL score 87-109
		TOEFL iBT at least score 72

The following candidates are not required to provide a language certification:

- a) candidates who have attended at least one year of high school **entirely** taught in English (having taken only certain subjects taught in English, even if for several consecutive school years, does not qualify for exemption);
- b) candidates who have taken the **BMAT test**.

Candidates referred to in letter (a) must provide, within the terms indicated above for the submission of language certification, a declaration of attendance issued by the High School with an explicit statement of the period of attendance and the language of teaching.

Candidates referred to in letter (b) must provide for the submission of the language certification, within the terms indicated in article 2 of this call, the final evaluation report in Section 3 English.

Syllabus regarding the content of the Admission Test

For admission to the course a general knowledge in the fields of literature, history, philosophy, social and institutional studies is required, as well as the ability to analyse written texts, logical and mathematical reasoning skills.

The knowledge and the skills required are, however, those promoted by educational institutions that organize educational and teaching activities consistent with the Ministerial Programmes, especially in view of the State Examinations and also refer to the scientific disciplines of Biology, Chemistry, Physics, and Mathematics.

Logical reasoning

Assessment of the ability to properly use the language used in the courses and of logical reasoning in a consistent manner with the premises as set out in symbolic or verbal form through multiple-choice questions formulated with short sentences, discarding the incorrect, arbitrary, or less likely conclusions.

The questions will be based on scientific essays or narrative by classical or contemporary authors, or on texts appearing in newspapers or in general or specialized magazines. Questions will also focus on abstract cases or problems, whose solution requires the adoption of different forms of logical reasoning.

Biology

- The chemistry of living organisms.
- The biological importance of weak interactions.
- The organic molecules found in living organisms and their functions.
- The role of enzymes.
- The cell as the basis of life.
- Cell theory. Cell size. The prokaryotic and eukaryotic cell in animals and plants. Viruses.
- The cell membrane: structure and functions - transport through the membrane.
- Cellular structures and their specific functions.
- Cell cycle and cell division: mitosis and meiosis - chromosomes and chromosome maps.
- Bioenergetics.
- The energy assessment of cells: ATP.
- Redox reactions in living organisms.
- The energetic processes: photosynthesis, glycolysis, aerobic respiration and fermentation.
- Reproduction and heredity.
- Life cycles. Sexual and asexual reproduction.
- Mendelian Genetics. Fundamental laws and applications.
- Classical genetics: chromosome theory of heredity; patterns of heredity.
- Molecular Genetics: structure and replication of DNA, the genetic code, protein synthesis. The DNA of prokaryotes. The structure of the eukaryotic chromosome. Genes and regulation of gene expression.
- Human genetics: transmission of mono- and multifactorial characters; hereditary diseases linked to the X chromosome and autosomal
- Biotechnology: Recombinant DNA technology and its applications.
- Heredity and environment.
- Mutations. Natural and artificial selection. Evolutionary theories. The Genetic basis of evolution.
- Anatomy and physiology of animals and man
- Animal tissues
- Anatomy and physiology of systems and equipment in humans and their interactions.
- Homeostasis.

Chemistry

- The constitution of matter: states of matter; heterogeneous systems and systems homogeneous; compounds and elements.
- Ideal Gas Laws.

- The structure of the atom: elementary particles; atomic number and mass number, isotopes, electronic structure of atoms of different 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 structures, position in the periodic system of elements and properties.
- Chemical bonding: ionic bonding, covalent bonding, and metallic bonding. Energy binding. Polarity of bonds. Electronegativity.
- Fundamentals of inorganic chemistry: nomenclature and main properties of inorganic compounds: oxides, hydroxides, acids, salts.
- The chemical reactions and stoichiometry: molecular and atomic mass, Avogadro's number, mole concept and its application, stoichiometry elementary balance of simple reactions, the different types of chemical reaction.
- 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, the concept of oxidant and reductant.
- Balance of simple reactions.
- Acids and bases: concepts of acid and base; acidity, neutrality or alkalinity of aqueous solutions; the pH. Hydrolysis. Buffer solutions.
- Fundamentals of organic chemistry: bonds between carbon atoms; formulas and rough texture, concept of isomerism. Aliphatic, alicyclic and aromatic hydrocarbons. Functional groups: alcohols, ethers, amines, aldehydes, ketones, carboxylic acids, esters, amides. Elements of nomenclature.

Physics

- Measures: direct and indirect measures, fundamental and derived quantities, physical dimensions of quantities, knowledge of the metric system and the CGS System of Units, Technician (or Practical) (ST) and International (SI) units of measurement (names and relations between fundamental and derived units), and multiples (names and values).
- Kinematics: kinematic quantities, various motions with particular regard to uniform and uniformly accelerated motion; uniform circular motion; harmonic motion (for all motions: definition and relationship between the kinematic quantities related).
- Dynamic: vectors and vector operations. Forces, motion of forces around a point. Vector composition of forces. Definitions of mass and weight. Acceleration of gravity. Density and specific gravity. Law of universal gravitation, 1st, 2nd, and 3rd laws of motion. Work, kinetic energy, potential energy. Principle of conservation of energy. Impulse and momentum. Principle of conservation of momentum.
- Fluid mechanics: pressure, and its unit of measure (not only in the SI system). Archimedes' principle, Pascal's and Stevin's laws.
- Thermology and thermodynamics: thermometry and calorimetry. Specific heat, thermal capacity. Mechanisms of heat propagation. Changes of state and latent heats. Ideal Gas Laws. 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 capacitors. Current. Ohm's law. Electrical resistance and resistivity, electrical resistors in series and in parallel. Work, Power, Joule effect. Generators. Electromagnetic induction and alternating currents. Effects of electric currents (thermal, chemical, and magnetic).

Mathematics

- Sets of numbers and algebra: natural numbers, integers, rational and real numbers. Sorting and comparison; order of magnitude and scientific notation. Operations and their properties. Proportions and percentages. Powers with integer exponents, rational and their properties. Radicals and their properties. Logarithms

(base 10 and base e) and their properties. Elements of combinatorics. Algebraic expressions, polynomials. Major products, nth power of a binomial, factoring polynomials. Algebraic fractions. Algebraic equations and inequalities of the first and second grade. Systems of equations.

- Functions: fundamental notions about the functions and their graphical representations (domain, codomain, sign, maxima and minima, and monotonicity, etc.). Elementary functions: algebraic integer and fractional, exponential, logarithmic, trigonometric. Composite functions and inverse functions. Trigonometric equations and inequalities.
- Geometry: Polygons and their properties. Circumference and circle. Measurements of lengths, areas, and volumes. Isometries, similarities, and equivalences in the plan. Loci. Measure of angles in degrees and radians. Sine, cosine, tangent of an angle and their significant values. Trigonometric formulas. Solving triangles. Cartesian reference system in the plane. Distance between two points and the midpoint of a segment. Equation of the line. Terms of parallelism and perpendicularity.
- Distance of a point from a line. Equation of the circle, the parabola, hyperbola, of the ellipse and their representation in the Cartesian plane. Pythagorean Theorem. Euclid Theorem (first and second).
- Probability and Statistics: Frequency distributions depending on the type of character and the main graphical representations. Definition of random experiment and event. Probability and frequency.