**CALL FOR APPLICATIONS FOR EU AND EQUATED CITIZENS TO THE ONE-CYCLE DEGREE COURSE IN MEDICINE AND SURGERY WITH LIMITED ACCESS (Class LM-41) IN ENGLISH AT HUMANITAS UNIVERSITY DENOMINATED MEDTEC SCHOOL.**

**SUMMARY OF THE CALL IN ENGLISH**

**Academic year 2019/2020**

**Foreword**

**The official source of the Call for Applications for EU and equated citizens is "BANDO DI CONCORSO, RISERVATO AI CITTADINI COMUNITARI ED EQUIPARATI, PER L'AMMISSIONE AL CORSO DI LAUREA MAGISTRALE A CICLO UNICO IN MEDICINA E CHIRURGIA (Classe LM-41) IN LINGUA INGLESE DI HUMANITAS UNIVERSITY" DENOMINATO MEDTEC SCHOOL in Italian. This document represents a summary of the call.**

**This document is provided for the convenience of international students. In the event of disputes, the parties should refer only to the document in Italian.**

**Admittance to the Degree Course is subject to selection through the University's admissions test.**

**Art. 1 Number of places available**

For the academic year 2019/20, the number of places available for EU citizens and EU equated citizens (as reported in art. 2) is established as 50.

The number of places available may change in accordance to a later Decree of the Ministry of Education, University and Research (M.I.U.R.), pursuant to the provisions of Law n. 264, August 2, 1999. The Decree of MIUR could confirm, increase or decrease the number of places available.

**Art. 2 Admission requirements**

Only candidates holding citizenship and education requirements reported in this paragraph are entitled to apply.

**Citizenship Requirements**

Candidates should be:

- Citizens of Italy and of European Union member states.
- Citizens holding a European citizenship together with a citizenship of a country not belonging to the European Union.
- The citizens of UK, Norway, Iceland, Liechtenstein, Switzerland, the Republic of San Marino.
- Non-EU citizens holding a residence permit in Italy for employment or self-employment, for family reasons, political asylum, asylum for humanitarian or religious reasons.

- Non-EU citizens legally resident in Italy from at least one year in possession of a Secondary School Diploma obtained in Italy.

- Non-EU citizens, resident anywhere who hold diplomas from Italian schools abroad or foreign or international schools having bilateral agreements or special regulations for the recognition of qualifications and who satisfy the general conditions required to be admitted to study in Italy.

- Refugees.

- Diplomatic personnel accredited to International Organizations in Italy, Italian State, Vatican State and their dependant family members.

**Candidates applying and sitting the test without the possession of the citizenship requirements will not be considered for the ranking.**

**Education Requirements**

To sit the admissions test, candidates must be in possession of a Secondary School Diploma.

For students holding a foreign High School qualification, a diploma is considered valid if obtained after at least 12 years of education, accompanied by the Declaration of Value issued by the Italian diplomatic authorities.

In the event that the local school system provides for 11 or 10 years of schooling, the title is valid when integrated with one or two years of university, having passed all the required exams for those academic years.

**Candidates not holding valid qualification, according to the requirements of law, will lose the right to enrol. Further, if already enrolled, the candidate's enrolment will be cancelled.**

For the validation of foreign qualifications, Humanitas University will follow Ministry guidelines for the academic year 2018-19 (latest update March 11th ,2019) available in Italian at:

http://www.studiare-in-italia.it/studentistranieri/

**Art. 3 Application for the admissions test and deadlines**
The application for the Admissions Test is done from June 27th 2019 to August 28th 2019.
The application has to be done exclusively online as follows:

**Registration to Humanitas University webportal and test enrolment**

1. **Candidates have to perform the Online registration on MyPORTAL at https://humanitas.esse3.cineca.it**: the candidate must register online to receive a username and a password; the username and password will be necessary to access the personal page on Humanitas University MyPORTAL;

2. **Candidates must enrol for the test on Myportal** by using his/her username and password according the timeline reported above. The candidate is required to choose one of the test

centres reported in Art. 14 and to pay the test fee of 165 €. **The test centre choice is irrevocable and the fee cannot be refunded for any reason.**

**Completion of the test enrolment on the Politecnico Milano website**

3. **Test enrolment has to be completed** on the Politecnico Milano website to which the candidate will be automatically redirected having done the enrolment and payed the test fee on the Humanitas University webportal. **When completing the enrolment the candidate will receive a Personal Code and a Password to bring the test day to start the test. Be aware that Personal Code and a Password received from Politecnico are different from username and password received from Humanitas University.**

**Enrolment Certificate**

4. Having completed the enrolment each candidate will receive a confirmation e-mail with the test starting time, the test address and the room assigned to sit the test. **Candidates are advised to print the enrolment certificate and to bring it when sitting the test. They have also to memorize or to note down the password received from Politecnico Milano as needed to start the test.**

**Art. 4 Date, Location**
The Admissions Test will take place on Friday, September 6th , 2019 at 10.00 at:

- Politecnico Milano
- test centres abroad

The test centres reported on the website www.hunimed.eu and in the Art. 14 "List of test centres".

**Candidates are required to show up at 9.00.**

**Art. 5 Sitting the test**
The test will be perfomed in the computer rooms of Politecnico Milano.

When sitting the test, candidates are required to show a valid Identity document (Identity card, Passport or Driving license). Candidates will be asked by the invigilator to sign up a register.

Are not allowed to sit the test candidates:

- arriving after the beginning of the test;
- presenting in a different room from the assigned one;
- without a valid id document (Identity card, Passport or Driving license).

During the test, candidates will not be allowed to talk to anyone apart from the staff and supervision Committee. Candidates will also not be allowed to keep personal belongings with them such as bags, books or notes, dictionaries, paper, pen, mobile phones, pads, smart watches, calculators or any

electronic device; candidates will be given indications for storing these items in a specific place. Anyone found in possession of the above-mentioned items during the test will be disqualified.

The Supervision Committee and the room invigilators will make sure that rules are respected and will act accordingly if any violation occurs.

**Art. 6 – Test Subjects and Syllabi**

During the Admissions Test, entirely provided into the English language, students are required to answer sixty (60) questions with five response options, of which the candidate will have to choose one only, discarding the wrong conclusions.

The test is computer based. Test time is 100 minutes.

On the basis of the programs listed in Annex A, the test is devided in five parts, one for each of the subjects reported in table 1. Number of questions and time of each test section is also reported in table 1.

**Table 1**

| Sections | Number of Questions | Time |
|---|---|---|
| Mathematics | 20 | 40 minutes |
| Text comprehension and critical reasoning | 10 | 25 minutes |
| Chemistry and Physics | 10 | 20 minutes |
| Biology | 10 | 10 minutes |
| Technical and scientific knowledge | 10 | 5 minutes |
| **Total** | **60** | **100 minutes** |

Once a section has expired candidates will be not allowed to reopen it.

**Art. 7 – Test Assessment and rankings**

The highest achievable score is 1000 points.

Table 2 shows for each test section the number of point assigned for each correct answer or deducted for each wrong answer. Questions not answered will score zero.

**Table 2**

| Sections | Correct answer | Wrong answer | Not answering |
|---|---|---|---|
| Mathematics | plus 16 points | minus 4 points | zero points |
| Text comprehension and critical reasoning | plus 24 points | minus 6 points | zero points |
| Chemistry and Physics | plus 16 points | minus 4 points | zero points |
| Biology | plus 16 points | minus 4 points | zero points |
| Technical and scientific knowledge | plus 12 points | minus 3 points | zero points |

Italian citizens, EU citizens and EU-equated citizens are admitted to the Degree Course in descending order based on their score and provided that they obtained a minimum score of four hundred (400) points .

In case of a draw, the following criteria are applied:

a) The points scored by the candidates respectively in the mathematics, Text comprehension and critical reasoning, Chemistry and Physics, Biology, Technical and Scientific Knowledge.

b) In case of further draw, the youngest student will prevail.

**Art. 8 – Publication of the ranking list**

After the test has been corrected, the ranking list will be published by Humanitas University **on September 12th, 2019** on the website www.hunimed.eu, maintaining anonymity. Candidates will be able to see their position in the ranking list through the pre-matriculation number generated during the Admissions Test application procedure. Moreover, using the *username* and *password* obtained during the registration on the portal, candidates can see their score by accessing their personal page.

**Art. 9 – Online enrolment and reserve list**

Enrolment - to be performed exclusivity online – will be possible between **September 12th, 2019** and **September 16th , 2019.** In this time range:

- candidates placed in the ranking from position n. 1 to position n. 50 are entitled to enrol;
- candidates placed in the ranking from position n. 51 to position n. 70 are entitled of a conditional enrolment. Conditional enrolments will be confirmed, following the ranking list, on the basis of the places available due to withdrawal of some of students placed from position n. 1 to position n. 50. Confirmations will be sent by e-mail on September 18th 2019.

In the time range from September 12th to September 16th, enrolled candidates (from position 1 to position 50 of the ranking) and conditional enrolled candidates (from position 51 to position 70 of the ranking) must pay the first instalment of an amount of 4.156 € on penalty of exclusion.

Not covered places, for candidates from position 71 in the ranking will be filled according to the following procedure:

- Publication on the website www.hunimed.eu of the number of places not covered due to withdrawals. Based on the test ranking, the University will begin the admission of those candidates whose position in test ranking was beyond the number of admissions places available (reserve list).

- Eligible candidates must enrol and pay the first instalment (4.156 €) within two working days from the day of publication of each reserve list by 6.00 p.m. of the second day.

- The procedure will be iterated until there are no more places available.

**Candidates who do not comply with the above-mentioned deadlines will lose the right to enrol at Humanitas University.**

First instalment (of an amount of 4.000 €) will be reimbursed only to conditional enrolled candidates (from position n.51 to position n. 70) in the event that enrolment cannot be confirmed. This condition will occur if available places will be completed by other candidates with an higher position in the ranking. Those candidates will be reimbursed within the month of December 2019.

**In no other cases or conditions the first instalment will be reimbursed.**

The regional tax of an amount of 156 € will be reimbursed only to candidates transferring from an University of Lombardy, having passed the Humanitas University admission test and paid the regional tax to the incoming university for the year 2019-20.

**Art.10. Completion of enrolment at Humanitas University**
Candidates must complete the on-line enrolment procedure by:

a) uploading on the on line portal (MyPORTAL) the following documents:

   - Photocopy of Passport;

   - Photocopy of tax code (Codice Fiscale);

   - a passport photo

b) providing a self-declaration of high school qualification achieved.

c) fully accepting the enrolment form generated by the system including the economic conditions specified in the call and in the University Fee Regulation.

Students completing the online enrolment procedure, having paid the first instalment achieve the full enrolment status at Humanitas University.

For students holding a foreign secondary school qualification, a copy of that certificate translated into Italian and legalized by the Italian Consulate/Cultural Institutes, together with the Dichiarazione di Valore (Declaration of Value) released by the Consulate. These documents can be handed in at Humanitas University Student Office from Monday to Friday, from 9.00 to 13.00 and from 14.00 to 17.00. An appointment is not necessary.

Once enrolled at Humanitas University, students from other universities can submit their curriculum and request the recognition of their prior activities. Recognition is subject to evaluation according to the Humanitas University procedure.

**Art.11 Candidates with disabilities**

Candidates with any kind of disability in need of extra means of support must formally request the support they will need for this test in relation to the extent of their disability. Candidates with learning disabilities can request the special terms foreseen in the Ministerial Decree DM 5669/2011 to guarantee equal opportunities during the test, including additional time for completing the test.

Among those candidates with disabilities the following should be considered: candidates who are blind, suffering from complete blindness or with vision not exceeding one tenth in both eyes; candidates who are deaf, from birth or before learning to speak; candidates with percentage of civil disability equal to or higher than 66%, candidates with handicap certificate of disability according to Law 104/92 as amended by Law 17/99. Disabilities must be certified by appropriate medical certificate issued by the competent health authorities. Certificates will be accepted only in Italian or in English.

Among the candidates with learning disabilities the following should be considered: candidates affected by dyslexia, dysgraphia, dyscalculia or dysorthography, certified by appropriate medical certificate, issued no earlier than 3 years prior by the National Health Service, by specialists or by accredited medical institutions, if approved by the Regions. The additional time for completing the test for candidates with learning disabilities will be in the measure of 30% compared to the standard time for the test, pursuant to Ministerial Decree DM 5669/2011.

These requests must be specified when applying for the Admissions Test on MyPORTAL and the medical certificates must be attached in electronic format. **Certificates sent by e-mail will not be accepted**

**Art. 12 Supervision committee and person responsible for the procedure**

To assure the fairness of the Admissions Test procedure, Humanitas University will appoint a committee. Furthermore for each room a chief invigilator will be appointed.

The person in charge of the procedure is Dr. Massimiliano Laganà (Managing Director of Humanitas University), email info@hunimed.eu. For further information, candidates can contact the Student Office by phone at +39 02 8224 3777.

**Art. 13 – Table of deadlines**

| | |
|---|---|
| Beginning of Admissions Test application | 27/06/2019 |
| Deadline of Admissions Test application | 28/08/2019 |
| Admission test | 06/09/2019 |
| Publication of ranking list | 12/09/2019 |
| Beginning of enrolment | 12/09/2019 |
| Deadline for enrolment and payment of first instalment | 16/09/2019 |
| Enrolment from the reserve list | 18/09/2019 |

**Art. 14 – List of test centres (Country and Cities)**

| **Country – City** | **Available places** |
|---|---|
| Italy – Milan | No limitation |
| UK London | 15 |
| France - Paris | 10 |
| Germany - Berlin | 10 |
| Grecia - Atene | 8 |

**Art 15 – Privacy Regulation**

Personal data will be treated pursuing European Data Protection Law n. 679/2016.

Data are collected for the mere purpose of administering the MEDTEC School Admission test.

The extended privacy disclaimer is available at:

https://www.hunimed.eu/privacy-disclaimer-application-humanitas-university-courses/

# Annex A
# Syllabi regarding the content of the MEDTEC School Admissions Test

## Mathematics

The understanding and basic knowledge of the following topics are required.

### Arithmetic and Algebra

Sets of Numbers: Naturals, Integers, Rational (decimals, fractions), Irrationals, Reals. Properties and operations on numbers and algebraic expressions. Percentage, absolute value, powers and roots. Operations on polynomials, factoring polynomials. Solving algebraic equations and inequalities. Operations on rational expressions, solving rational equations and inequalities.

### Functions

Cartesian coordinate plane; graph of an equation, symmetries of a graph. Properties, graphing, solving equations and inequalities for: power, exponential, and logarithmic functions, trigonometric functions.

### Logic

Propositional calculus: propositions, connectives, truth tables, laws involving connectives.
Predicate calculus: predicates, quantifiers, laws involving quantifiers.
Evaluating logical expressions. Inference rules. Proof by contraposition, proof by contradiction.

### Geometry

Euclidean plane geometry and solid geometry: angles and their measure, degree-radian conversion; perpendicular lines, parallel lines, geometric transformations, similarity. Properties and main theorems about: triangles, quadrilaterals, parallelograms, regular polygons, circles, and their area and perimeter; spheres, cones, cylinders, prisms, parallelepipeds, pyramids, and their volume and surface area.
Analytic plane geometry: equation of straight lines, circles, conic sections. Right triangle resolution using trigonometric formulas.

### Statistics

Describing a data set: absolute, relative, cumulative frequency; histograms, bar graphs, pie charts; average, median, mode, range, variance, standard deviation. Counting techniques: permutations and combinations. Probability using combinatorics.

## Test Comprehension and Critical Reasoning

The aim of this section is:

1. the assessment of the ability to properly use the language used in the courses.

2. the ability to show logical reasoning in a manner consistent with the premises.

Type 1 questions (text comprehension) will be based on scientific non-fiction or on fiction by classical or contemporary authors, or on texts appearing in newspapers or in general or specialist magazines.

Type 2 questions (critical reasoning) will be set out in symbolic or verbal form through multiple-choice questions formulated with short sentences, discarding the incorrect, arbitrary, or less likely conclusions.

## Chemistry and Physics

### Chemistry

The understanding and basic knowledge of the following topics are required.

**Structure of matter**
Atoms, isotopes and molecules, elements and compounds.
Atomic theory of matter, chemical periodicity, quantum numbers and atomic orbitals. Electronic structure and atoms properties: Pauli exclusion principle, Hund's rule, "aufbau" principle. The periodic table and dependence of atomic properties on the electronic structure: atomic and ionic radius, ionization energy and electron affinity.
Chemical bonding: structure and properties of the substances. Ionic bond. Covalent bond and molecular geometry, VSEPR theory. Hybrid orbitals and steric number. Electronegativity according to Pauling and molecular polarity.
Intermolecular attractions, interactions and the properties of liquids and solids. Hydrogen bonding. Metallic solids, ionic solids, covalent solids and molecular solids. Inorganic chemical nomenclature.

**Stoichiometry**
Atomic and molecular mass. Mole and number of molecules: Avogadro's constant and molar mass. Chemical reactions and equations: types of chemical reactions, balanced chemical equations and stoichiometric calculations.
Ideal gases and mixtures gases. Avogadro's law.
Concentrations and stoichiometry of the reactions in aqueous solutions.

**Oxidation-Reduction**
Oxidation numbers and redox reactions: oxiding and reducing agents.
Electrochemistry: balancing redox equations, using standard reduction potentials, cell voltage. Electrolysis and Faraday's law.

**Solutions**
Acids and bases: Arrhenius, Brönsted and Lewis definitions. Water and the pH scale: strong acids and strong bases, weak acids and weak bases. Acid-base neutralization and acid-base titrations. Buffer solutions. Dissolution and precipitation equilibria.

**Organic chemistry**
Classification, nomenclature, empirical, molecular and structure formula, isomerism, physical and biological properties of organic compounds: alkanes and cycloalkanes, alkenes and cycloalkenes, alkynes, benzene and its derivatives, alcohols and phenols, ethers and epoxides, thiols and sulfides, aldehydes and ketones, amines, carboxylic acids and derivatives (salts, anhydrides, esters, amides, acid halides, and nitriles). Oxidation and reduction of organic compounds.

### Physics

The understanding and basic knowledge of the following topics are required.

**Mechanics**
The international system of units; changing units. Scalars and vectors.
Linear and angular motion of a particle (position, displacement, velocity, acceleration); free-fall acceleration, projectile motion, uniform circular motion.
Force, mass, Newton's laws. Linear momentum; conservation of linear momentum. Angular momentum; conservation of angular momentum.
Friction. Work; work done by the gravitational force and by a spring force. Kinetic and potential energies, conservation of mechanical energy. The simple pendulum.
System of particles (center of mass, linear momentum, angular momentum; collisions).
Newton's law of Gravitation. Kepler's laws.

**Fluids**
Density, pressure. Pascal's principle. Archimedes' principle. Bernoulli's equation.

**Electromagnetism**
Electric charge; conductors and insulators. Coulomb's law, electric field, Gauss' law, electric potential and electric potential energy. Capacitance, capacitors in series and in parallel.
Electric current, resistance, Ohm's law. Circuits, the EMF.
Lorentz force and magnetic field. Ampère's law.
Electromagnetic waves: wavelength, frequency, energy.

**Optics**
Fermat's principle; reflection, refraction and Snell's law. Prisms; mirrors and lenses; interference; diffraction.

**Thermodynamics**
Temperature; Celsius, Fahrenheit and absolute scales. Heat, specific heat, expansion. Avogadro's number, ideal gases. The laws of Thermodynamics; entropy. Thermodynamic cycles; thermal efficiency of a heat engine.

## 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.
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.

**Technical and Scientific Knowledge**

This questions will be focused on basic technical and scientific subjects to prove the candidates' knowledge and interest towards science and technology.