



Study Plan

School: School of Sciences and Technology
Degree: *** TRANSLATE ME: Curso Preparatório ***
Course: Preparatory Course for Admission to Higher Education (cód. 683)

Branch * TRANSLATE ME: para estudantes nacionais *****

1st Year - 1st Semester

Branch * TRANSLATE ME: para estudantes nacionais *****

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
*** TRANSLATE ME:Obrigatórias ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
LLT13414O	Portuguese Fundamentals I	*** TRANSLATE ME: ***	6	Semester	156
PED13416O	Study methodology	*** TRANSLATE ME: ***	3	Semester	78
*** TRANSLATE ME:Optativas ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
MAT13430O	Mathematics Fundamentals I	*** TRANSLATE ME: ***	6	Semester	156
QUI13426O	Chemistry Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
GEO13429O	Geology Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
ARQ13428O	Descriptive Geometry Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
*** TRANSLATE ME:Optativa livre ***					

1st Year - 2nd Semester

Branch * TRANSLATE ME: para estudantes nacionais *****

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
*** TRANSLATE ME:Obrigatórias ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
LLT13415O	Portuguese Fundamentals II	*** TRANSLATE ME: ***	6	Semester	156
PED13418O	Scientific Information Research	*** TRANSLATE ME: ***	3	Semester	78
*** TRANSLATE ME:Optativas ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
MAT13431O	Mathematics Fundamentals II	*** TRANSLATE ME: ***	6	Semester	156
FIS13420O	Physics Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
BIO13422O	Biology Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
ECN13427O	Economics Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
*** TRANSLATE ME:Optativa livre ***					



Branch *** TRANSLATE ME: para estudantes internacionais ***

1st Year - 1st Semester

Branch *** TRANSLATE ME: para estudantes internacionais ***

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
*** TRANSLATE ME:Obrigatórias Alternativas ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
LLT131320	Portuguese Language A1	*** TRANSLATE ME: ***	6	Semester	156
LLT131340	Portuguese Language B1	*** TRANSLATE ME: ***	6	Semester	156
LLT134500	Portuguese Language C1	*** TRANSLATE ME: ***	6	Semester	156
LLT131330	Portuguese Language A2	*** TRANSLATE ME: ***	6	Semester	156
LLT131350	Portuguese Language B2	*** TRANSLATE ME: ***	6	Semester	156
LLT134510	Portuguese Language C2	*** TRANSLATE ME: ***	6	Semester	156
PED134160	Study methodology	*** TRANSLATE ME: ***	3	Semester	78
*** TRANSLATE ME:Optativas ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
MAT134300	Mathematics Fundamentals I	*** TRANSLATE ME: ***	6	Semester	156
QUI134260	Chemistry Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
GEO134290	Geology Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
ARQ134280	Descriptive Geometry Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
*** TRANSLATE ME:Optativa livre ***					

1st Year - *** TRANSLATE ME:2.º Semestre ***

Branch *** TRANSLATE ME: para estudantes internacionais ***

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
*** TRANSLATE ME:Obrigatórias Alternativas ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
LLT131320	Portuguese Language A1	*** TRANSLATE ME: ***	6	Semester	156
LLT131340	Portuguese Language B1	*** TRANSLATE ME: ***	6	Semester	156
LLT134500	Portuguese Language C1	*** TRANSLATE ME: ***	6	Semester	156
LLT131330	Portuguese Language A2	*** TRANSLATE ME: ***	6	Semester	156
LLT131350	Portuguese Language B2	*** TRANSLATE ME: ***	6	Semester	156
LLT134510	Portuguese Language C2	*** TRANSLATE ME: ***	6	Semester	156
PED134180	Scientific Information Research	*** TRANSLATE ME: ***	3	Semester	78



1st Year - *** TRANSLATE ME:2.º Semestre ***

Branch *** TRANSLATE ME: para estudantes internacionais ***

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
*** TRANSLATE ME:Optativas ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
MAT134310	Mathematics Fundamentals II	*** TRANSLATE ME: ***	6	Semester	156
FIS134200	Physics Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
BIO134220	Biology Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
ECN134270	Economics Fundamentals	*** TRANSLATE ME: ***	6	Semester	156
*** TRANSLATE ME:Optativa livre ***					

Conditions for obtaining the Degree:

*** TRANSLATE ME: Para obtenção do certificado do curso, é necessário aprovação a 18 ECTS obrigatórios e a 24 ECTS optativos, em que 12 ECTS tem de ser nas Áreas Científicas (AC) de Matemática ou Química ou Geologia ou Ciências Biológicas ou Arquitetura ou Economia e os outros 12 ECTS podem ser as optativas dessas AC ou em optativas livres de 1º ciclo da UÉ em qualquer AC:1º SEMESTRE é necessário a obtenção de aproveitamento em:2 UC's obrigatórias – 9 ECTS :· Fundamentos de Português I para estudantes nacionais OU uma das seguintes UC 's para estudantes internacionais em função de teste de diagnóstico a realizar: Língua Portuguesa A1 ou Língua Portuguesa B1 ou Língua Portuguesa C1 ou Língua Portuguesa A2 ou Língua Portuguesa B2 ou Língua Portuguesa C2· Metodologia de estudo 2 UC's optativas num total de 12 ECTS (podendo 1 UC ser optativa livre):· Fundamentos Preparatórios de Matemática I· Fundamentos Preparatórios de Química· Fundamentos Preparatórios de Geologia · Fundamentos Preparatórios de Geometria descritiva2º SEMESTRE é necessário a obtenção de aproveitamento em:2 UC's obrigatórias – 9 ECTS :· Fundamentos de Português II para estudantes nacionais OU uma das seguintes UC 's para estudantes internacionais em função de teste de diagnóstico a realizar: Língua Portuguesa A1 ou Língua Portuguesa B1 ou Língua Portuguesa C1 ou Língua Portuguesa A2 ou Língua Portuguesa B2 ou Língua Portuguesa C2· Pesquisa de informação científica 2 UC's optativas num total de 12 ECTS (podendo 1 UC ser optativa livre)· Fundamentos Preparatórios de Matemática II· Fundamentos Preparatórios de Física· Fundamentos Preparatórios de Biologia · Fundamentos Preparatórios de Economia ***

Program Contents

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Portuguese Fundamentals I (LLT134140)

Portuguese Literature:

Interpretation, contextualization, analysis of stylistics resources in the following texts and authors:

Gil Vicente, A Farsa de Inês Pereira.

Camões, Os Lusíadas.

Padre António Vieira, Sermão de Santo António aos Peixes

Fernando Pessoa (ortónimo); Fernando Pessoa (heterónimos).

Portuguese Language:

1. The constituents of the sentence and their syntactic functions.
2. Processes of coherence and textual cohesion

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Study methodology (PED134160)

The planning and organization of study in academic context;

- Individual learning dynamics and strategies;
- Study and learning techniques; critical reading, organizing and documenting readings;
- Group learning dynamics and their relation to scientific knowledge;
- How to make a critical review;
- The construction of an academic work;
- Preparation of oral presentation of an academic work.



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Mathematics Fundamentals I (MAT134300)

Combinatorial Calculus and Probabilities

Real successions

Algebra (polynomials) and Functions

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Chemistry Fundamentals (QUI134260)

1. Chemical elements; atomic masses and sizes; electronic energies in atoms. Periodic Table.

2. Properties and transformations of Matter: chemical bonding; chemical transformations.

3. Chemical equilibrium; qualitative properties of chemical reactions.

4. Chemical reactions in aqueous environment: acid-base reactions; oxi-reduction reactions; equilibrium solubility.

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Geology Fundamentals (GEO134290)

The genesis and differentiation of planet Earth.

The Plate Tectonics theory and geodynamics.

Petrogenetic and hydrologic cycles.

Atoms, molecules, crystals and major groups of minerals.

Sedimentary processes and rocks.

Igneous processes and rocks.

Metamorphic processes and rocks.

Geological materials as fundamental raw materials.

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Descriptive Geometry Fundamentals (ARQ134280)

1. Notion of projection: Projector, projection surface

2. Types of projection, Systems of dihedral representation

3. Point, location of a point, its projections

4. Line segment, projections of a line

5. Flat figures: Horizontal, frontal or profile polygons and circle, vertical planes or top

6. Plane, straight lines of a plane, position of this in relation to the planes of projection

7. Intersections

8. Solids: Pyramids and cones of horizontal base, front, profile or top, prisms and cylinders of horizontal, front, profile, vertical or top bases

9. Solid sections by horizontal, front and profile planes, and projecting planes

10. Shadow: own shadow, spatial, projected (real and virtual), conventional light direction

10.1. Projected shade of points, straight and straight segments in the projection planes

10.2. Own shadow and projected shadow of flat figures in the projection planes

10.3. Shadow itself and projected shadow of pyramids and prisms, in the projection planes.



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Portuguese Fundamentals II (LLT134150)

Portuguese Literature

Interpretation, contextualization, analysis of stylistics resources in the following texts and authors:

1. The poetic work of Antero de Quental and Cesário Verde.
2. The tale in the twentieth century: Maria Judite de Carvalho e Mário de Carvalho.
3. José Saramago, O ano da morte de Ricardo Reis.

Portuguese Language

1. The classification of sentences. Coordination and subordination.
2. The verbal system in written texts.

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Scientific Information Research (PED134180)

1. Sources of information.
 - 1.1. Typology of sources of information - primary sources and secondary sources
2. Bibliographic research.
3. Search in database.
 - 3.1. Search Tools.
4. Analysis of scientific articles.
5. Standards A.P.A. for scientific articles - organization of quotations, references, pictures and figures.

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Mathematics Fundamentals II (MAT134310)

Differential Calculus and applications

Trigonometry

Complex numbers

Geometry

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Physics Fundamentals (FIS134200)

1. Time, reference frame, velocity, acceleration. Motion in straight line with constant speed or constant acceleration. Circular motion. Energy and Work. Constant forces and straight line motion.
2. Thermodynamics: temperature and heat, heat capacity, thermal machines;
3. Light, reflection, refraction;
4. Vibrations and waves;
5. Electromagnetism: electric charge; Coulomb law; point charges and plane capacitor; field lines; magnetic field created by electric currents and magnets. Magnetic field lines.



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Biology Fundamentals (BIO134220)

I 1 Brief notions on the Origin of Life

II 1 Organic matter acquisition by Heterotrophs

- 1.1 Uni vs multicellular organisms
- 1.2 Ingestion, digestion and absorption
2. Organic matter acquisition by Autotrophs
 - 2.1 Photosynthesis
 - 2.2 Chemosynthesis

III 1 Fermentation

2. Aerobic respiration
3. Gaseous exchanges in plants and animals

IV 1 Cell growth and renewal

- 1.1 DNA and Protein Synthesis

V 1 Asexual Reproduction

- 1.1 Mitosis
- 1.2 Breeding strategies
2. Sexual reproduction
 - 2.1 Meiosis and fertilization
 - 2.2 Sexual reproduction and variability
3. Life cycles

VI 1 Unicellularity and multicellularity

2. Mechanisms of evolution
 - 2.1 Evolutionism vs Fixism
 - 2.2 Natural selection, artificial selection and variability

VII 1 Classification systems for organisms

- 1.1 Diversity of criteria
- 1.2 Taxonomy and Nomenclature

VIII 1 Interaction between organisms

- 1.1 Ecological Relations
- 1.2 Notions of habitat and ecological niche
- 1.3 Communities and populations
- 2 Brief notions of population dynamics



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Economics Fundamentals (ECN134270)

I - INTRODUCTION

1. Economic activity and Economic Science

II - FUNDAMENTAL ASPECTS OF ECONOMIC ACTIVITY

2. Needs and consumption
3. The production of goods and services
4. Trade and currency
5. Prices and markets
6. Income and income distribution
7. Savings and investment

III - THE ACCOUNTING OF ECONOMIC ACTIVITY

8. Economic agents and the economic circuit
9. National Accounting

IV - THE ECONOMIC ORGANIZATION OF WORLD SOCIETIES

10. Economic relations with the Rest of the World
11. State intervention in the economy
12. The Portuguese economy in the context of the European Union

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Portuguese Language A1 (LLT131320)

1. Grammatical Contents

Affirmative, interrogative and negative sentences.

Definite and indefinite articles.

Numerals. Adjective and substantive concordance.

Feminine and plural (general rules)

Irregular and irregular verbs - present

Differences between “ser” and “estar”

Irregular and regular verbs – past simple.

Complex verb constructions: “estar a” + infinitive; “ir” + infinitive; “haver de” + infinitive.

Prepositions – movement, place and time.

Pronouns – personal, possessives, demonstratives, interrogatives and indefinites.

Adverbs – place and quantity

The verb “haver”.

The verbal form “há” with a temporal meaning – “desde”.

Reflexive pronominal conjugation

Personal pronouns and its collocation.

2. Lexical contents

— Introducing yourself; Nationalities/Countries; Jobs; Greetings; Formal and Informal greetings; Family; Colours; Hours; Meals; Daily routines; House; Week days, months and seasons; Holidays; Shopping; Clothes; Hobbies



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Portuguese Language B1 (LLT131340)

1. Grammatical Contents

- Review of some grammatical contents
- Word composition: prefixes
- Word composition: suffixes
- Imperative
- Subjunctive mood.
- Personal Infinitive/ Subjunctive present
- Subjunctive tense: future.
- Subjunctive present + Subjunctive future.
- Verbs from: fazer; pôr; pedir; ter; ver, vir.
- Verb “dar”, “ficar” and “passer” followed by a preposition.
- Accentuation rules.

2. Linguistic and Cultural contents

- Regions.
- Cities.
- Portuguese celebrities.
- Historical aspects.
- Social aspects.
- Environmental aspects
- Holidays.
- Traditions.
- Legends.
- Music.
- Literature.
- Comparison and synonyms
- Proverbs, idiomatic expressions, riddles and tongue twisters.

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Portuguese Language C1 (LLT134500)

1. Written comprehension and writing

- 1.1. Reading comprehension: development of reading skills, comprehension, analysis and discussion of varied complexity texts.
- 1.2. Writing Expression: development of the different skills of writing, by producing different types of documents.

2. Grammatical and lexical consolidation

2.1. Structural Competence

Development of lexical knowledge and some aesthetic aspects in language use and improvement of textual structuring mechanisms, in grammatical cohesion components of grammatical (interphasic, temporal, referential and lexical) and consistency, through written exercises that test its proper use.

3. Oral communication

3.1. Oral comprehension

Improving oral comprehension.

3.2. Oral expression

Improving the pace of speech and speaking.



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Portuguese Language A2 (LLT131330)

1. Grammatical Contents

- Review of some grammatical contents
- Regular and irregular verbs - Imperfect Past
- Future
- Complex verb structures: ir + infinitive; haver de + infinitive.
- Verb “haver”.
- Verb form “há” with a temporal meaning – “desde”
- Personal pronouns: direct and indirect object and its collocation.
- Past participle.
- Complex verb tenses.
- Auxiliary verbs - modals.
- Direct and Indirect speech.
- Personal pronouns with preposition.
- Adjectives and adverbs degree.
- Feminine and plural (Irregular cases)
- Accentuation rules.

2. Linguistic and Cultural contents

- Regions.
- Cities.
- Portuguese celebrities.
- Historical aspects.
- Social aspects.
- Holidays.
- Traditions.
- Legends.
- Music.
- Literature.
- Proverbs, idiomatic expressions, riddles and tongue twisters.



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Portuguese Language B2 (LLT131350)

1. Grammatical Contents

- Review of some grammatical contents
- Indicative mood: imperfect tense
- Subjunctive mood: imperfect tense
- Conditional
- Pluperfect Subjunctive tense.
- Se + Imperfect subjunctive + conditional / Imperfect (Indicative mood) Infinitive/ Subjunctive present
- Indicative / Subjunctive
- Subjunctive present + Subjunctive future.
- Conditional phrases: Se + subjunctive future; Se + subjunctive imperfect; Se + subjunctive pluperfect.
- Direct and Indirect Speech.
- Pronominal conjugation with indicative future and conditional
- Accentuation rules.

2. Linguistic and Cultural contents

- Regions.
- Cities and countries.
- Geographical aspects.
- Historical aspects.
- Social aspects.
- Economical aspects.
- Environmental aspects
- Technological aspects.
- Hobbies and leisure
- Traditions.
- Press.
- Literature.
- Comparison and synonyms
- Proverbs and idiomatic expressions.

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Portuguese Language C2 (LLT134510)

1. Written comprehension and writing

1.1. Reading comprehension: development of reading skills, comprehension, analysis and discussion of texts of varied complexity.

1.2. Writing Expression: development of different skills of written expression, through the production of different texts

2. Structural Competence: Development of lexical knowledge and some aesthetic aspects in language use and improvement of mechanisms of textual structure, in the components of grammatical (interphasic, temporal, referential and lexical) cohesion and of coherence, through written exercises that test its adequate use: flexional and derivational morphology; mode and tenses and nominal forms; correspondence between gerund / infinitive / participial and conjunctural sentences of equivalent meaning; coordination and subordination constructions.

3. Oral communication: Improving oral comprehension.

3.2. Oral Expression: Improving the pace of speech and speaking.