



Diploma Supplement

Holder of the information

Viktória Fröhlich

Issued by

Eötvös Loránd University

Faculty of Science

The number of pages containing personal data in this document: 10

Institutional data: {04933EB6-25B6-4287-868D-06B0D5900C07}

1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.0. Diploma identification number or code: ELTE-TTK-1450/2023 year: 2023

1.1. Family name: Fröhlich

1.2. Given name(s): Viktória

1.3. Date of birth: 2001-05-08 Place of birth: Pápa Country of birth: Hungary Mother's name: Judit Marietta Illés

1.4. Education ID: 77248245279 More identification: EXSNKA

1.5. Student registration code: T165243/FI80798

Study started in 2020-2021-1 Study finished in 2022-2023-2

2. INFORMATION IDENTIFYING THE QUALIFICATION

2.1. Title of qualification conferred: Physicist

2.2. Main field(s) of study for the qualification: Physics

2.3. Name of awarding institution: Eötvös Loránd University (FI80798), Faculty of Science
Status of awarding institution: university Maintainer: Hungary
Professional accreditation body by Hungarian Accreditation Board

2.4. Name of institution administering studies:
Eötvös Loránd University (FI80798), university

2.5. Language of instruction: Hungarian

3. INFORMATION ON THE LEVEL OF THE QUALIFICATION

3.1. Level of qualification: BA/BSc, ISCED 5A, EQF Level 6

3.2. Official length of programme in semesters: 6 semesters
Official length of programme in years: 3 years

3.3. Access requirement(s): secondary school, ISCED 3A
Baccalaureate (secondary school leaving final examination)

4. INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1. Academic Programme requirements:

4.1.1. Identification number of Law on Qualification Requirements of Academic Programme:
381/2004. (XII.28.) Gov. De.

4.1.2. Education goals:
Physicist

4.1.3. Credits to achieve: 180

4.1.4. System of grading:
examinations, degree paper, final examination

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4.2. List of subjects / marks / credits:

Legend of the units displayed next to the number of hours taught: s - per semester; w - per week

Completed subjects

Semester: 2020-2021-1, Credits: 32					
<u>Subject</u>	<u>Code</u>	<u>Hours</u>	<u>Grade type</u>	<u>Credit</u>	<u>Grade</u>
Fundamentals of astronomy	ff5t1s08	2/w	exam	2	5
Calculus	kalkfm19va	2/2/w	exam	6	5
Mechanics	mechf19va	4/2/w	exam	9	5
Introduction to Computational Tools	szamalapf19la	2/w	term mark	3	5
Vector Calculus	vektorf19va	4/4/w	exam	12	5
Semester: 2020-2021-2, Credits: 41					
<u>Subject</u>	<u>Code</u>	<u>Hours</u>	<u>Grade type</u>	<u>Credit</u>	<u>Grade</u>
Formation of planets and planetary systems	csssbrenkg17em	2/w	exam	2	5
Life on extrasolar planets	csssexolifg20ex	2/w	exam	2	5
Electromagnetism and Optics	elmagnf19va	4/2/w	exam	9	4
Basic Measurements in Physics	fizlab1f19la	4/w	term mark	6	5
Numerical Methods in Physics 1	fiznum1f19la	2/w	term mark	3	5
Thermodynamics and Continuum Mechanics	hotanef19va	4/2/w	exam	9	5
Mathematical Methods in Physics	matmodszf19va	4/2/w	exam	9	5
Online sports	VTN-099:203	2/w	term mark	1	5
Semester: 2021-2022-1, Credits: 29					
<u>Subject</u>	<u>Code</u>	<u>Hours</u>	<u>Grade type</u>	<u>Credit</u>	<u>Grade</u>
Physics of Atoms, Nuclei, and Elementary Particles	atomreszf19va	3/1/w	exam	6	5
Introduction to astronomy 1	csbevesil1g17ea	2/w	exam	3	5

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Theoretical Mechanics B	elmfiz1bf19va	2/2/w	exam	5	5
Classical Physics Laboratory	fizlab2f19la	4/w	term mark	6	5
The history of astronomy 1	ft2csitor1g17ea	2/w	exam	3	5
Probability Theory and Statistics in Physics	valszamf19va	2/2/w	exam	6	4

Semester: 2021-2022-2, Credits: 29

<u>Subject</u>	<u>Code</u>	<u>Hours</u>	<u>Grade type</u>	<u>Credit</u>	<u>Grade</u>
Material Science	anyagtudf19ea	2/w	exam	3	5
Astrometry 1	csasztróm1g17ea	2/w	exam	3	5
Introduction to astronomy 2	csbevcsil2g17ea	2/w	exam	3	5
Detection Methods in Astronomy 1	cseszlgylg17ga	2/w	term mark	3	5
Electrodynamics B	elmfiz2bf19va	2/2/w	exam	5	5
Modern Physics Laboratory	fizlab3f19la	4/w	term mark	6	5
Numerical Methods in Physics 2	fiznum2f19la	2/w	term mark	3	5
The history of astronomy 2	ft2csitor2g17ea	2/w	exam	3	5

Semester: 2022-2023-1, Credits: 22

<u>Subject</u>	<u>Code</u>	<u>Hours</u>	<u>Grade type</u>	<u>Credit</u>	<u>Grade</u>
Astrophysics 1	csasztróf1g17ea	2/w	exam	3	5
Astrometry 2	csasztróm2g17ea	2/w	exam	3	5
Introduction to astronomy 3	csbevcsil3g17ea	2/w	exam	3	5
Astronomy Seminar 1	cscsillsz1g17ga	2/w	term mark	3	5
Detection Methods in Astronomy 2	cseszlgylk2g17ga	2/w	term mark	3	5
Exoplanets I.	csssexobolg17em	2/w	exam	2	5
Quantum Mechanics B	elmfiz3bf19va	2/2/w	exam	5	5

Semester: 2022-2023-2, Credits: 27

<u>Subject</u>	<u>Code</u>	<u>Hours</u>	<u>Grade type</u>	<u>Credit</u>	<u>Grade</u>
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Astrophysics 2	csasztof2g17ea	2/w	exam	3	5
Introduction to astronomy 4	csbevcsil4g17ea	2/w	exam	3	5
Astronomy Seminar 2	cscsillsz2g17ga	2/w	term mark	3	5
Detection Methods in Astronomy 3	cseszlgyk3g17ga	2/w	term mark	3	5
Statistical Physics B	elmfiz4bf19va	2/2/w	exam	5	5
Thesis Tutorial	szakdfizf19da	5/w	term mark	10	5

Other results

<u>Subject</u>	<u>Credit</u>	<u>Grade</u>
Final examination	-	5

<u>Subject</u>	<u>Credit</u>	<u>Grade of degree thesis</u>	<u>Result of degree thesis defence</u>
Thesis	0	5	5

Sum of credit points contained in the transcript of records: 180

Additional accredited qualification(s) and achievements:

general upper intermediate (B2) proficiency examination in English (compound exam), 1706628, 2015-05-27

general advanced (C1) proficiency examination in English (compound exam), 1886581, 2017-05-31

general upper intermediate (B2) proficiency examination in German (written exam), 1980138, 2018-07-18

general upper intermediate (B2) proficiency examination in German (oral exam), 2060435, 2019-07-10

4.3. System of assessment: Grading in a given subject can be:

a) five point scale:

Excellent (5) grade is assigned to the student who thoroughly knows the entire subject matter in all of its inherent relationships and is able to independently apply his/her knowledge with absolute certainty;

Good (4) grade is assigned to the student who thoroughly knows the entire subject matter of the course and can safely apply its content;

Satisfactory (3) grade is assigned to the student who knows significant parts of the subject matter of the course and is able to apply them with suitable safety;

Pass (2) grade is assigned to the student who knows significant parts of the course on a satisfactory level and is able to demonstrate an acceptable level of familiarity in the application of the content of the course;

Fail (1) grade is assigned to the student who does not command sufficient knowledge and cannot demonstrate skills in applying the practices of his/her chosen field.

b) three point qualification:

excellent (Exc), average (Av) or unsatisfactory.

c) two point scale:

completed (Compl) or not completed.

4.4. Degree classification: with honours

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5. INFORMATION ON ENTITLEMENTS BY THE QUALIFICATION

5.1. *Access to further study:* MA/MSc, ISCED 5A

Upon successful entrance examination MSc, PhD studies in science, preferably Physics

5.2. *Professional status:*

Physicist

6. ADDITIONAL INFORMATION

6.1. Further information:

Discrepancies in codes: due to changes in the electronic administration system of the University, there may be discrepancies in the subject codes or the subject features such as 'hours' recorded in the electronic system and those found in the student's mark/grade book (index). This discrepancy is restricted to the above data only, all other data pertaining to the subjects recorded here are identical with those found in the mark/grade book.

6.2. Eötvös Loránd University:

Facts and figures

Eötvös Loránd University - situated in Budapest - is the oldest and biggest university in Hungary. The number of its students has reached 33 000, the number of teachers and researchers is 2400.

History

The predecessor of the University was founded in 1635 by Péter Pázmány, the Archbishop of Esztergom as a Catholic university for teaching Theology and Philosophy. The Faculty of Law was opened as early as 1667. With the foundation of the Medical Faculty in 1769, it became a classical university with four faculties. In 1777, the University was transferred to Buda and in 1784 to Pest. In 1780 - according to the Diploma Inaugurale, issued by Queen Maria Theresa - the Catholic university, which had been established in Nagyszombat, became the Royal Hungarian University. During the 19th century the University developed into the academic centre of Hungary covering every scholarly field. At the turn of the century it belonged to the 15 biggest universities in the world. In 1921 the University took up the name of its founder and became the Royal Hungarian Pázmány Péter University. Since 1950 the University has borne the name of one of its previous rectors, the world-famous professor of Physics, Loránd Eötvös. Over the last hundred years, Eötvös Loránd University has had many world famous scientists and five Nobel Prize laureates among its teachers and alumni.

Faculties

Since 2003, the University has had 8 faculties: Faculty of Law and Political Science, Bárczi Gusztáv Faculty of Special Education, Faculty of Humanities, Faculty of Informatics, Faculty of Education and Psychology, Faculty of Primary and Pre-school Education, Faculty of Sciences and the Faculty of Social Sciences. In 2017 the University expanded to include two new additions to its structure, the Berzsenyi Dániel Teacher Training Centre in Szombathely and the Institute of Business Economics in Budapest. In 2021, the Institute of Business Economics transformed into a faculty, the Faculty of Economics, the ninth faculty of the University.

Training

Eötvös Loránd University offers training at all levels of higher education (BA, BSc, MA, MSc, PhD). Although the language of teaching is mainly Hungarian, a wide range of programmes - either full-time or part-time - is available in English.

Degrees

Eötvös Loránd University is internationally recognized and its programmes are accredited by the Hungarian Accreditation Board which is a full member of the European Association for Quality Assurance in Higher Education and entered in the European Quality Assurance Register for Higher Education. The diplomas issued by Eötvös Loránd University are acknowledged worldwide, and its course credits are transferable in all countries in the European Union.

International Relations

Eötvös Loránd University has extensive relationships with universities all over the world. The University has formal agreements for cooperation and exchange with more than 800 universities in Europe, Asia, Africa, North and South America at institutional or faculty level. The main areas of cooperation are joint training and research projects, the exchange of students and guest lecturers, joint participation in international conferences and workshops, and also the exchange of guest lecturers.

6.3. Further information sources:

www.elte.hu

Further validation and explain these data: 1117 Budapest Pázmány Péter sétány 1/A.; Phone: 06-1-372-2500

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7. CERTIFICATION OF THE DOCUMENT

Date: 2023-07-04

Gabriella Török
Head of Bureau of Education

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8. INFORMATION ON THE HUNGARIAN HIGHER EDUCATION SYSTEM

(modified: 15 September, 2022)

8.1. Types of Institutions and Institutional Control

The establishment and operation of higher education institutions are regulated by Act No. 204 of 2011 (National Higher Education Act). Operating within the legal framework of the National Higher Education Act, Hungarian higher education institutions are recognized state (public) or non-state (church or private) higher education institutions. The list of recognized higher education institutions is indicated in Annex 1 of the National Higher Education Act. Higher education studies are offered at three types of higher education institutions, egyetem (university), alkalmazott tudományok egyeteme (university of applied sciences) and főiskola (college). Universities, universities of applied sciences and colleges may offer courses in all three training cycles. The programmes are identical at all types of institutions.

8.2. Types of Programmes and Degrees Awarded

The consecutive training cycles of higher education leading to a higher education degree are alapképzés (Bachelor course), mesterképzés (Master course) and doktori képzés (Doctoral course). In cases set by government decree or legislation, Master degrees can also be awarded after the completion of integrated, one-tier training.

In addition to the aforementioned, higher education institutions may conduct non-degree vocational higher education programmes and postgraduate specialist trainings and may offer adult education within the framework of lifelong learning as well.

Higher education institutions apply a credit system based on the European Credit Transfer and Accumulation System. Accordingly, one credit stands for an average of 30 hours of student workload.

8.3. Approval/Accreditation of Programmes and Degrees

In the case of each vocational higher education programme, Bachelor and Master course, the programme and outcome requirements are set in legal regulations, i.e. the level of the training, the professional qualification that can be obtained and all the competencies the acquisition of which are the preconditions for obtaining the diploma in the given programme.

Upon request of the higher education institution, the Educational Authority – after having obtained the expert opinion of the Hungarian Accreditation Committee – licenses and registers the launching of all vocational higher education programmes, Bachelor or Master courses or Doctoral schools. Also, the operating licenses of higher education institutions are revised by the Educational Authority in every 5 years, taking into account the expert opinion of the Hungarian Accreditation Committee. The above mentioned procedures apply for all recognized, state or non-state higher education institutions, except for religious studies, where only the requirements in respect of infrastructure can be examined.

8.4. Organisation of Studies

Students studying in vocational higher education programmes, Bachelor and Master courses, as well as postgraduate specialist trainings complete their studies by passing a final examination. The final examination may consist of the defense of the degree thesis or diploma project, and additional oral, written or practical examinations.

8.4.1. Vocational Higher Education Programmes

The diploma obtained on completion of a vocational higher education programme testifies a vocational higher education qualification, but it is not per se an academic degree. A vocational higher education programme requires the completion of at least 120 credits, and the duration of the programme is a minimum of 4 semesters.

8.4.2. First/Second Cycle Degree Programmes

The first higher education degree is the alapképzés (Bachelor degree) ending in a professional qualification. A Bachelor course requires the completion of 180 to 240 credits. The length of the programme is 6-8 semesters.

The second higher education degree is the mesterképzés (Master degree) ending in a professional qualification. Based on a Bachelor course, Master courses require the completion of 60 to 120 credits. The length of the programme is 2-4 semesters.

8.4.3. Integrated Programmes

The integrated, one-tier programmes, which are based on the secondary school leaving examination (érettségi vizsga), lead to mesterképzés (Master degree), have the length of 10-12 semesters and require the completion of 300 to 360 credits. Besides teacher education, religious studies and some programmes of arts, e. g. the following programmes are offered as integrated programmes: veterinary medicine, architecture, dentistry, pharmaceuticals, law and medicine.

8.4.4. Specialised Graduate Studies

Higher education institutions may also offer szakirányú továbbképzés (postgraduate specialist training) for Bachelor and Master degree holders in this type of a training. Through the completion of 60 to 120 credits a specialised qualification can be obtained. The length of the programme is 2-4 semesters.

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8.4.5. Doctoral Programmes

Doctoral courses that began before 1 September 2016 require the completion of at least 180 credits. The duration of the programme is 36 months.

Doctoral courses beginning after 1 September 2016 require the completion of at least 240 credits. The duration of the programme is 8 semesters. During the programme, at the end of the fourth semester a complex examination must be completed. The doctoral thesis must be submitted within three years after the completion of the examination.

Regardless the date of entering a doctoral course, either within the framework of the doctoral course or following it, through a separate degree obtaining procedure, the scientific degree "Doctor of Philosophy" (abbreviated as PhD), or in the field of art "Doctor of Liberal Arts" (abbreviated as DLA) may be obtained. The maximum duration of the degree obtaining procedure is 2 years.

8.5. Grading Scheme

The performance of students is generally assessed following a five-grade scale: excellent (5), good (4), satisfactory (3), pass (2), and fail (1) or a three-grade scale: pass with merit (5), pass (3), and unsatisfactory (1). Nevertheless, higher education institutions may also use other systems for assessment if they are comparable to those mentioned above.

8.6. Access to Higher Education Programmes

The ranking of students applying for higher education programmes is primarily based on their secondary school grades and their érettségi vizsga (secondary school leaving examination) results or based solely on the latter. The requirement for admission to vocational higher education programmes, Bachelor and integrated Master courses is the secondary school leaving examination taken – as a rule – after the completion of the 12th grade of a secondary school, certified by érettségi bizonyítvány (secondary school leaving certificate). The admission to certain programmes may also be based on health or professional requirements or aptitude tests. To Master courses students holding a Bachelor degree can be admitted. To postgraduate specialist trainings students holding a Bachelor or a Master degree may be admitted. To Doctoral courses only applicants holding a Master degree can be admitted. Higher education institutions may set additional requirements for admission to Master, postgraduate specialist and Doctoral courses.

8.7. Additional Sources of Information

Hungarian ENIC/NARIC⁵, Ministry for Culture and Innovation⁶, Educational Authority⁷, Hungarian Accreditation Committee⁸.

⁵ Web site: www.naric.hu

⁶ Web site: www.kormany.hu/kulturalis-es-innovacios-miniszterium

⁷ Web site: www.oktatas.hu, www.felvi.hu

⁸ Web site: www.mab.hu