

## 1. Information identifying the holder of the qualification

- 1.1. *Family name:* SLAK
  - 1.2. *Given name:* JURE
  - 1.3. *Date of birth:* 20. 12. 1993
  - 1.4. *Student identification number or code:* 27121100
  - 1.5. *Date of graduation:* 22. 9. 2015
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## 2. Information identifying the qualification

- 2.1. *Name of the qualification and the title conferred (in original language):*  
Diploma  
DIPLOMIRANI MATEMATIK (UN)  
Abbreviation: dipl. mat. (UN)
  - 2.2. *Main field(s) of study for the qualification, study program, options:*  
Classification according to the ISCED: Mathematics and statistics.  
First cycle academic study program in MATHEMATICS.  
The study program was accredited by the Council for Higher Education of the Republic of Slovenia on 27 October 2006.
  - 2.3. *Name of the awarding institution (in original language):*  
UNIVERZA V LJUBLJANI, FAKULTETA ZA MATEMATIKO IN FIZIKO (UL FMF)  
Jadranska 19, 1000 Ljubljana
  - 2.4. *Legal status of the awarding institution:* public; university member
  - 2.5. *Language(s) of instruction/examination:* Slovenian
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## 3. Information on the level of the qualification

- 3.1. *Level of the qualification:* first cycle: academic study program
- 3.2. *Official length of the study program:* 3 full academic years based on 180 ECTS credits
- 3.3. *Admission requirements:*

Admission to the study program is open to either:

- a) Holders of the matura certificate.
- b) Holders of the vocational matura certificate obtained in any of the four-year high school programs. In this case, an additional examination in one of the general matura subjects different from those of the vocational matura is required. Either one of the vocational matura subjects or the additional one must be mathematics.
- c) Holders of the final examination certificate obtained in any of the four-year high school programs prior to 1 June 1995.

In case the number of applicants exceeds the maximum availability, the applicants are selected according to their final matura (or vocational matura) grade, their mathematics matura (or vocational matura) grade, their grade point average (GPA) in the last two years of high school, and their final mathematics grades in the last two years of high school. These are weighted in the following way:



*Applicants under a)*

- Matura certificate grade	30 % of points
- Matura mathematics exam grade	30 % of points
- GPA in the 3 <sup>rd</sup> and the 4 <sup>th</sup> year of high school	20 % of points
- Final grade in mathematics in the 3 <sup>rd</sup> and the 4 <sup>th</sup> year of high school	20 % of points

*Applicants under b)*

- Vocational matura grade	20 % of points
- Matura or vocational matura mathematics exam grade	40 % of points
- GPA in the 3 <sup>rd</sup> and the 4 <sup>th</sup> year of high school	10 % of points
- Final grade in mathematics in the 3 <sup>rd</sup> and the 4 <sup>th</sup> year of high school	30 % of points

*Applicants under c)*

- Final examination grade	30 % of points
- Mathematics final examination grade or mathematics grade in the 4 <sup>th</sup> year of high school in case of exemption from the final exam	30 % of points
- GPA in the 3 <sup>rd</sup> and the 4 <sup>th</sup> year of high school	20 % of points
- Final mathematics grade in the 3 <sup>rd</sup> and the 4 <sup>th</sup> year of high school	20 % of points

Transitions from other study programs are possible in accordance with transition requirements of the first cycle academic study program in Mathematics and the Guidelines for transitions between study programs.

## 4. Information on the contents and results gained

### 4.1. *Mode of study:* full-time

### 4.2. *Study program requirements:*

Lectures	1110 hours
Problem sessions	1095 hours
Seminars	105 hours

The methods for testing the competences, knowledge, and skills are described in the courses syllabi.

For enrollment in the next study year it is necessary to earn 50 ECTS credits from courses and exams in the current study year. In addition to the credit quota, the completions of the following exams are obligatory:

- for enrollment in the 2<sup>nd</sup> year: Analysis 1, Algebra 1 and Computer lab,
- for enrollment in the 3<sup>rd</sup> year: all the exams of the 1<sup>st</sup> year, Analysis 2a and Analysis 2b, Algebra 2, Programming 1, Point-set topology and Seminar.

For re-enrollment in the same study year, a student needs to earn at least half of all possible credits of the current study year (30 ECTS credits), and all credits from the previous study years.

Re-enrollment is only possible once in the course of studies. A change of the study program as result of disability of enrollment in the next study year is automatically counted as re-enrollment.

To finish the program, students have to complete all exams and other study program requirements with the total academic load of 180 ECTS credits.

### 4.3. *Study program details and the individual grades/credits obtained:*

The first cycle academic study program in Mathematics provides its graduates with a solid background in all branches of mathematics. The possibility to obtain deeper knowledge in a more specialized area is guaranteed through a wide selection of elective courses. The principal goal of the academic study program in Mathematics is to qualify its graduates for solving hard mathematical problems arising in industry, in the public sector, and in sciences. At the same time, graduates of the program are equipped with the core knowledge necessary for studies in the second cycle.



# Curriculum for the first cycle academic study program in MATHEMATICS:

## 1<sup>st</sup> year (terms 1 and 2)

Course	Lectures	Seminars	Problem sessions	ECTS credits
Analysis 1	120	-	120	18
Algebra 1	90	-	90	14
Logic and sets	30	-	30	6
Computer lab	15	-	45	6
Introduction to programming	30	-	30	6
Physics 1	45	-	45	6
Elective *	30	-	60	4

\* Electives:

Course	Lectures	Seminars	Problem sessions	ECTS credits
Proseminar A	30	-	60	4
Proseminar B	30	-	60	4

## 2<sup>nd</sup> year (terms 3 and 4)

Course	Lectures	Seminars	Problem sessions	ECTS credits
Analysis 2a	60	-	45	8
Analysis 2b	60	-	45	6
Algebra 2	45	-	30	6
Algebra 3	45	-	30	6
Physics 2	45	15	30	6
Programming 1	30	-	30	5
Point-set topology	30	-	30	5
Seminar	-	30	-	3
Elective 1 *	30	-	30	5
Elective 2 *	30	-	30	5
Elective 3 *	30	-	30	5

\* Electives:

Course	Lectures	Seminars	Problem sessions	ECTS credits
Discrete mathematics 1 (B1)	30	-	30	5
Programming 2 (B1)	30	-	30	5
Algebraic curves (B2)	30	-	30	5
Introduction to geometric topology (B2)	30	-	30	5
Affine and projective geometry (B)	30	-	30	5
Coding theory and cryptography (B)	30	-	30	5

Electives are divided into groups B1, B2, and B. Each student opts for three electives. Of those, at least one must belong to group B1, and at least one to group B2.

## 3<sup>rd</sup> year (terms 5 and 6)

Course	Lectures	Seminars	Problem sessions	ECTS credits
Analysis 3	45	-	45	6
Analysis 4	45	-	45	6
Probability	30	-	30	5
Statistics	30	-	30	5
Introduction to numerical methods	45	-	45	6
Mechanics 1	30	-	30	5



Diploma seminar	-	60	-	7
Elective courses *	120	-	120	20

\* Specific electives:

<i>Course</i>	<i>Lectures</i>	<i>Seminars</i>	<i>Problem sessions</i>	<i>ECTS credits</i>
Numerical linear algebra (B1)	30	-	30	5
Mechanics 2 (B1)	30	-	30	5
Mathematical modelling (B1)	30	-	30	5
Data structures and algorithms 1 (B2)	30	-	30	5
Data structures and algorithms 2 (B2)	30	-	30	5
Coding theory and cryptography (B2)	30	-	30	5
Discrete mathematics 2 (B2)	30	-	30	5
Optimization 1 (B2)	30	-	30	5
Database basics (B)	30	-	30	5
Financial mathematics 1 (B)	30	-	30	5
Game theory (B)	45	-	45	6
Affine and projective geometry (B)	30	-	30	5
Introduction to differential geometry (B)	30	-	30	5
Elementary geometry (B)	45	-	15	6
Elementary number theory (B)	45	-	15	5
Random processes 1 (B)	30	-	30	5
Selected topics on data analysis (B)	15	-	45	5

Each student earns 20 ECTS credits by means of elective courses. Of those, at least 15 credits must be earned by means of specific elective courses, and up to 5 credits by means of general elective courses within other study programs. The chosen specific elective courses must include at least one from the group B1 and at least one from the group B2. Repetition of an elective course from the 2<sup>nd</sup> year is not possible.

Electives can also be chosen from among the courses offered in the second cycle of this program, subject to approval by the department study committee.

Students studying at a foreign institution as part of the Socrates - Erasmus exchange program can transfer up to 30 ECTS credits awarded at that institution in the case of a single term exchange or 60 ECTS credits in the case of a full year exchange.

Information on the student's exam results and other program requirements, as well as any other relevant student's achievements:

<i>No.</i>	<i>Course</i>	<i>Year</i>	<i>ECTS credits</i>	<i>Date</i>	<i>Grade (theory)</i>	<i>Grade (problem solving)</i>
1.	Logic and sets	1st	6	25. 1. 2013	10	10
2.	Computer lab	1st	6	15. 2. 2013		10
3.	Physics I	1st	6	4. 6. 2013	10	10
4.	Algebra I	1st	14	14. 6. 2013	10	10
5.	Introduction to programming	1st	6	24. 6. 2013	10	10
6.	Analysis I	1st	18	28. 6. 2013	10	10
7.	Proseminar B	1st	4	12. 7. 2013		10
8.	Algebra II	2nd	6	24. 1. 2014	10	9
9.	Point-set topology	2nd	5	31. 1. 2014	10	10
10.	Programming I	2nd	5	3. 2. 2014	10	10
11.	Analysis IIa	2nd	8	7. 2. 2014	10	9



12.	Physics II	2nd	6	10. 2. 2014	10	10
13.	Discrete mathematics I	2nd	5	9. 6. 2014	10	10
14.	Programming II	2nd	5	10. 6. 2014	10	10
15.	Algebra III	2nd	6	18. 6. 2014	10	10
16.	Introduction to geometric topology	2nd	5	24. 6. 2014	10	9
17.	Seminar	2nd	3	30. 6. 2014		10
18.	Analysis IIb	2nd	6	7. 7. 2014	10	9
19.	Coding theory and cryptography	3rd	5	13. 6. 2014	10	10
20.	Data structures and algorithms I	3rd	5	30. 1. 2015	10	10
21.	Introduction to numerical methods	3rd	6	2. 2. 2015	10	10
22.	Mechanics I	3rd	5	6. 2. 2015	10	9
23.	Analysis III	3rd	6	12. 2. 2015	10	10
24.	Probability	3rd	5	19. 2. 2015	10	10
25.	Statistics	3rd	5	17. 6. 2015	10	10
26.	Data structures and algorithms II	3rd	5	19. 6. 2015	10	10
27.	Analysis IV	3rd	6	1. 7. 2015	10	10
28.	Numerical linear algebra	3rd	5	3. 7. 2015	10	10
29.	Diploma seminar	3rd	7	22. 9. 2015	10	10

*Average grade (arithmetic mean of exams and practical exercises): 9,91*

*Extracurricular courses completed:*

*Course: Proseminar A (4 ECTS credits), exam date: 6. 2. 2013, grade: -/9*

*Course: Discrete mathematics 2 (5 ECTS credits), exam date: 15. 6. 2015, grade: 10/10*

*Course: Mathematical modelling (5 ECTS credits), exam date: 17. 6. 2015, grade: 10/10*

*Course: Database basics (5 ECTS credits), exam date: 29. 6. 2015, grade: 10/10*

*Senior seminar project: INDUCTIVE AND COINDUCTIVE DATA TYPES*

*Supervisor: prof. dr. Andrej Bauer*

*Other student's achievements:*

Jure Slak has received the Dean's Award for Academic Achievement in the first and third study year.

*Extracurricular activity:*

During the academic years 2013/14 and 2014/15, Jure Slak successfully worked as an undergraduate tutor. His teaching load was 2,5 hour per week in academic year 2013/14 and 3,5 hour per week in academic year 2014/15.

In the study year 2014/15, Jure Slak served as a volunteer student tutor.

#### 4.4. Grading scheme:

- 10 - (excellent: excellent knowledge with negligible deficiencies)
- 9 - (very good: above average knowledge with minor deficiencies)
- 8 - (very good: average knowledge)
- 7 - (good: average knowledge with deficiencies)
- 6 - (pass: knowledge meets the minimum requirements)
- 5–1 - (fail: knowledge does not meet the minimum requirements)



- 4.5. *Overall classification of the qualification (in original language):* Not applicable at the Faculty of Mathematics and Physics of the University of Ljubljana.
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## 5. Information on the function of the qualification

### 5.1. *Admission to further study:*

Second cycle master's study programs and third cycle doctoral study programs.

### 5.2. *Professional status:*

Graduates of the academic study program in Mathematics can find employment in the technology and logistic sector of the economy, banks and insurance companies, research and planning institutions, technology parks, and the public sector.

Generic competences developed in the program: ability of abstract thinking and problem analysis, ability of sorting out effective solutions and of their critical evaluation, ability of application of knowledge in practice, ability of using and following the expert literature, ability to set forth both written and oral presentations of specialized topics, ability to work both individually and as part of an (international) team.

Subject specific competences developed in the program: a graduate of the academic study program in Mathematics should be able to model a practical problem mathematically, qualitatively analyze the obtained mathematical problems, conceive algorithms to solve them, implement those algorithms using appropriate programming tools, and analyze and present the results.

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## 6. Additional information

### 6.1. *Additional information:*

Faculty of Mathematics and Physics bulletins posted on the faculty's webpages.

### 6.2. *Further information sources:*

University of Ljubljana  
Faculty of Mathematics and Physics  
Jadranska 19  
SI-1000 Ljubljana  
phone: +386 1 4766 500  
fax: +386 1 2517 281  
<http://www.fmf.uni-lj.si>

University of Ljubljana  
Kongresni trg 12  
SI-1000 Ljubljana  
phone: +386 1 2418 500  
fax: +386 1 2418 660  
<http://www.uni-lj.si>

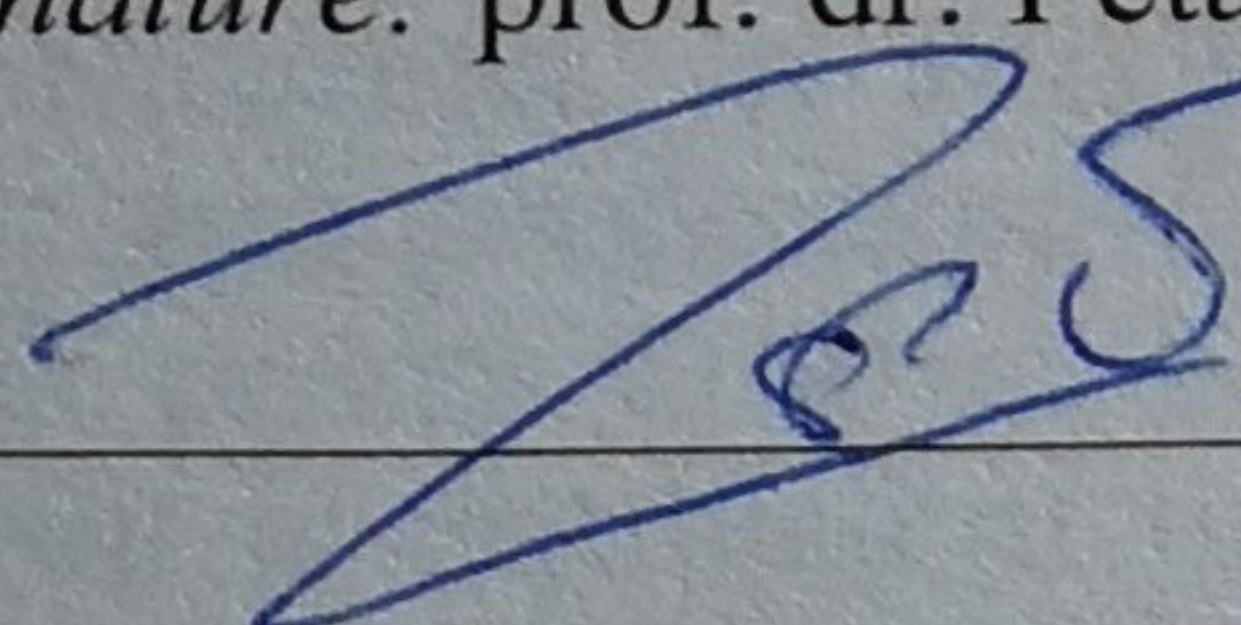
Ministry of Education, Science  
and Sport  
ENIC-NARIC Centre Slovenia  
Masarykova 16  
SI-1000 Ljubljana  
phone: +386 1 4784 600  
fax: +386 1 4784 719  
<http://www.mizs.gov.si/en/>

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## 7. Certification of the supplement

### 7.1. *Date:* 8. 3. 2016

### 7.2. *Signature:* prof. dr. Petar Pavešić



### 7.3. *Official capacity:* Dean

### 7.4. *Official stamp or seal:*

