

8.1 Types of high education institutions and their status

According to the Law on higher education (Official Gazette RS, No 76/05), the activity of high education in the Republic of Serbia is performed by the following high-education institutions:

- **University** – University is an independent institution of higher education the performance of which unites educational, scientific, research and professional/artistic work, as components of a unique higher education process. University can perform all types and levels of studies. The institution of higher education has the status of university if it performs academic study programs at all levels of studies, within at least three fields (natural sciences and mathematics, social and humanistic studies, medical sciences, technical and technological sciences, arts) and three areas. As an exception, a university can be established in the area of art, if it contains all three levels of studies from at least three fields of art.
- **Faculty/Art academy, as a component of the university** – Faculty/art academy is an institution of higher education, i.e. a unit of the system of higher education which is a part of university and performs academic study programs and develops scientific, research and professional/artistic activities within one or more areas. Faculty/art academy can also perform specialized study programs. In legal transfer, faculty/art academy is presented by the name of the university which it belongs to, under its own name and in accordance with the university statute.
- **The Academy of professional studies** – The academy of professional studies is an independent institution of higher education the performance of which unites educational, research, professional and artistic work, as components of the unique process of high education. The academy of professional studies can perform basic professional studies and specialist professional studies. An institution of higher education has the status of the academy of professional studies if it accomplishes at least five accredited study programs from at least three fields.
- **Higher education school** – Higher education school is an independent institution of higher education which performs basic, specialist and graduate academic studies in one or more areas.
- **Higher education school of professional studies** – Higher education school of professional studies is an independent institution of higher education which performs basic professional and specialist professional studies from one or more areas.

The stated institutions are treated as legal subjects. The stated institutions are independent institutions of higher education, except faculties and art academies.

8.2 Types and level of studies

The activity of higher education is performed through academic and professional studies based on granted/accredited study programs for the achievement of high education.

At the **academic** studies, the academic study programme is carried out. The program enables students for the development and practical use of scientific, professional and artistic achievements. There are three levels of academic studies.

Academic studies of the first level are basic academic studies.

Academic studies of the second level are graduate academic studies – master and specialist academic studies. Integrated academic studies are basic and graduate academic studies organised as one whole.

Academic studies of the third level are doctor academic studies.

At the **professional** studies, the professional study program is carried out. This program enables students to apply knowledge and skills necessary for participating in the working process. There are two levels of professional studies.

Professional studies of the first level are basic professional studies.

Professional studies of the second level are specialist professional studies.

8.2.1 Basic (academic or professional) studies

Basic studies are organized by all the institutions of higher education defined by the Law of higher education.

Basic academic studies last three to four years with the range of 180 to 240 ECTS.

Basic professional studies last three years with the range of 180 ECTS.

Study program of basic and specialist studies can include the final work.

A person who finishes the basic academic studies acquires the professional title that includes the name of the profession of the first degree academic studies in the corresponding area.

A person who finishes the basic professional studies acquires the professional title that includes the name of the profession of the first degree of the professional studies in the corresponding area.

8.2.2 Graduate academic studies

Graduate academic studies can be organized by the university, faculty of the higher education school. Graduate academic studies last one or two years depending on the range of the previous basic academic studies so that in total there is a range of at least 300 ECTS. Study program of graduate academic studies contains the obligation to create the final work. The person who finishes the graduate academic studies acquires the academic title - graduated, with the name of profession of the second degree of graduate academic studies in the corresponding area – master.

A person who finishes the basic professional studies acquires the professional title that includes the name of the profession of the first degree of the professional studies in the corresponding area.

8.2.3 Integrated studies

Academic study programs can be also organized as integrated within basic and graduate academic studies (integrated academic studies) with the total of at least 300 ECTS and the maximum of 360 ECTS points (academic study programs in medical sciences).

8.2.4 Specialised (academic or professional) studies

Specialised studies last at least one year with the range of at least 60 ECTS and can be either academic or professional. The study program of professional studies can include specialised work. The person who finishes specialised studies acquires the professional title with the name of profession of the second degree of academic or professional studies in the corresponding area.

8.2.5 PhD academic studies

PhD studies can be organized by universities and faculties. PhD studies last for at least three years with at least 180 ECTS with previous basic and graduate academic studies that lasted for at least five years and at least 300 ECTS. PhD dissertation is the final part of the study program of PhD studies, with the exception of the PhD in Art which is an artistic project. Exceptionally, a person can achieve the PhD title by graduating in medical studies and with finished specialization, on the grounds of the dissertation defence on the works published in leading world magazines.

8.3 Marking system

A student's achievement in a specific subject is continuously assessed during lessons and it is expressed in points.

By fulfilling the exam preceding duties and by passing exams, a student can achieve the maximum of 100 points.

Study program establishes the proportion of points achieved during the exam-preceding duties and in the exam. The exam-preceding duties bring a minimum of 30 and maximum of 70 points.

Student's success is assessed by marks from 5 (failed) to 10 (excellent).

An institution of higher education can establish a different, numeric method of marking, by establishing the relation between these marks and those of 5 to 10. A general act of an institution of higher education defines more closely the way of taking exams and marking.

8.4 Formal conditions necessary to proceed with the higher education

To enroll the first level studies, a candidate takes the entrance exam or ability-check exam, in accordance with the general act of an independent institution of higher education.

The list (order) of candidates to enroll the first level of studies is established on the basis of the general success achieved during high-school education and results achieved at the entrance/ability check exam. A candidate who passed the final, general knowledge high school exam, does not take entrance exam. In this case, the candidate's results of the final high school exam are being assessed, instead of the entrance exam, in accordance with the general act of an independent institution of higher education.

An independent institution of higher education can direct the candidate, who passed the professional/artistic final high school exam instead of the entrance exam, to take tests in the certain subjects of the general, final high school exam.

On the basis of the competition criteria, an independent institution of higher education makes the rank order list of applied candidates. The right to enroll the first level of studies has the student who is ranked on the list, within the number of students determined in accordance with the article 84 of the Law of higher education.

The student of the first level studies of another independent institution of higher education, a person who acquired the higher education at the first level studies and a person who no longer has the status of a student, in accordance with this law, can enroll the first level studies, under conditions and within forms established by the general act of an independent institution of higher education, at the personal demand.

A candidate enrolls the **second and third level of studies** under certain conditions, according to the manner and procedures established by the general act and open competition of an independent institution of higher education.

8.5 Accreditation

Accreditation is used to establish that an institution of higher education and study programs fulfills the standards established by the National Council, and that it has the right to issue public documents, in accordance with the Law of higher education.

In the process of **accrediting an institution of higher education**, it is established if the institution fulfills certain conditions which are, according to the Law of higher education, specified for the given institutions which perform the higher education activity.

In the process of **accrediting a study program**, it is established if the conditions of introducing such a program are being fulfilled, in accordance with the law.

The process of accrediting is conducted at the demand of the Ministry, the founder, i.e., the institution of higher education itself.

In the process of accrediting, the Accreditation and Quality Control Commission can issue a certificate of accreditation to an institution of higher education or study program, issue an act of warning to an institution of higher education. This act points out the weaknesses concerning conditions, and gives a deadline for removing the weaknesses. When the deadline is over, it decides about the request. It can issue a decision which denies the accreditation demand.

If the board reaches a decision to deny the accreditation, the founder/ institution of higher education can file a complaint to the National Council within 30 days from the day the decision was received.

There could not be a legal process against the decision of the National Council.

The founder/institution of higher education has the right to repeat the request for accreditation after the period of one year the decision to deny the accreditation request was received.

The institution of higher education can start working and performing its activities after it receives the working license.

Working license is issued by the Ministry, at the demand of the institution of higher education. At the territory of AP Vojvodina, the licence is issued by the organs authorised for the delegated affairs.

8.6 National sources of information

- **The Ministry of Education**, Nemanjina 22-26, 11000 Belgrade, Serbia; Telephone: +381/11/363 11 07, Fax: +381/11/361 64 91, web: www.mp.gov.rs
- **The National Council for Higher Education**, the Palace of the Republic of Serbia, Bulevar Mihajla Pupina 2, 11000 Belgrade, Serbia.
- **Provincial Secretary of Education**, Bulevar Mihajla Pupina 16, 21000 Novi Sad, Serbia, AP Vojvodina; Telephone +381/11/48745 55, Fax: +381/21/456 986; web: www.obrazovanje.vojvodina.gov.rs



REPUBLIC OF SERBIA



UNIVERSITY OF NIŠ

(Name and address of the Independent Higher Education Institution)

Faculty of Sciences and Mathematics in Niš

(Name and address of the Higher Education Institution)



DIPLOMA SUPPLEMENT

Valid only with the diploma

number dated year

Diploma supplement provides a description of the nature, level, cohesion, context and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. Information in all eight sections should be provided, and where information is not provided, an explanation should give the reason why.

1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1 First Name:

1.2 Surname:

1.3 Date of birth:

1.4 Student's identification number:

 JMBG:

2. INFORMATION IDENTIFYING THE QUALIFICATION

2.1 Title conferred (professional, academic, scientific):

Master of Science in Computer Science - - Artificial Intelligence and Machine Learning

2.2 Scientific/artistic/professional field(s) of study:

Computer Sciences

2.3 Name and status of the awarding institution:

University of Niš, Faculty of Sciences and Mathematics in Niš (state faculty)

2.4 Name and status of institution administering studies (if different from 2.3):

2.5 Language of instruction:

Serbian

3. INFORMATION ON THE LEVEL OF THE QUALIFICATION

3.1 Type and level of qualification:

Master academic studies (second cycle)

3.2 Official length of studies:

2 years (4 semesters)

3.3 Access requirements:

Completed undergraduate studies in computer science or a related field.

4. INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1 Mode of study:

Full-time studies (at the seat of the faculty)

4.2 Name and aims of the study program:

Master studies in Computer Science - Artificial Intelligence and Machine Learning

Students who have completed this study program are qualified to identify and analyze problems, implement and apply algorithms and models of machine learning and artificial intelligence in solving problems and tasks, as well as to design new algorithms and models and new ways of applying existing algorithms. They are also qualified to manage the development and application of artificial intelligence and machine learning with the overriding goal of ensuring the further development of the human species.

4.3 Please see the next page:

4.4 Grading scheme:

Marks:	Classification:	Points number	
		from	to
10	excellent	91	100
9	outstandingly good	81	90
8	very good	71	80
7	good	61	70
6	sufficient	51	60
5	insufficient	0	50

4.5 Average grade and classification:

10.00 (ten and 00/100), excellent

4.3 Study program details and the marks obtained:

No	code	Subjects							Year of the study program	Mark	Lecturer (surname and name)
		title	status	ECTS	total number of classes						
					lectures	practice	other				
1	20.IM11	Machine learning and artificial Intelligence	M	8	45	45	0	I	10(ten)	Branimir Todorović	
2	20.IMMU12	Optimization for machine learning	M	7	45	45	0	I	10(ten)	Marko Miladinović	
3	20.IMU13	Statistical methods in intelligent data processing	M	8	45	45	0	I	10(ten)	Miroslav Ristić	
4	20.IMI05	Combinatorics and graph theory	E	7	45	30	0	I	10(ten)	Marko Milošević	
5	20.IMMU21	Artificial neural network	M	8	45	30	15	I	10(ten)	Branimir Todorović	
6	20.IMMU22	Big data analytics	M	8	45	30	15	I	10(ten)	Milan Tasić	
7	20.IMI36	Machine Learning and artificial intelligence in robotics	E	7	45	30	0	I	10(ten)	Branimir Todorović	
8	20.IMI21	Computer Graphics 1	E	7	45	30	0	I	10(ten)	Vesna Veličković	
9	20.IMMU31	Frameworks and programming languages for machine learning and artificial intelligence	M	8	45	30	15	II	10(ten)	Branimir Todorović	
10	20.IMMU32	Reinforcement learning	M	8	45	30	15	II	10(ten)	Stefan Stanimirović	
11	20.IMSIR	Research Study	M	7	0	0	120	II	10(ten)	Branimir Todorović	
12	20.IMSPP	Professional Practice	M	3	0	0	90	II	passed	Marko Milošević	
13	20.IMI25	Fuzzy systems	E	7	45	30	0	II	10(ten)	Ivana Micić	
14	20.IMI32	Artificial intelligence applications in biomedicine	E	7	45	30	0	II	10(ten)	Svetozar Rančić	
15	20.IMPMR	Master Thesis – Research Study	M	8	0	0	0	II	10(ten)		
16	20.IMMP	Master Thesis – writing and defense	M	12	0	0	0	II	10(ten)		
Total				120							
Average grade									10.00 (ten and 00/100)		

Title of the final paper / dissertation / artistic project:

Commission for the paper defence:

*the mark has been acknowledged

5. INFORMATION ON PURPOSE

5.1 Access to further studies:

Second degree academic studies, Specialist academic studies, Third degree academic studies, Doctoral studies

5.2 Professional status:

Master of Computer Science – artificial intelligence and machine learning
 Qualified to recognize and analyze problems, implement and apply algorithms and models of machine learning and artificial intelligence when solving given problems and tasks, as well as to design new algorithms and models and new ways of applying existing algorithms and models of machine learning and artificial intelligence in solving practical problems

6. ADDITIONAL INFORMATION

6.1 Additional information on the student:

6.2 Further information sources:

www.pmf.ni.ac.rs

7. CERTIFICATION OF THE DIPLOMA SUPPLEMENT

7.1 No:

Date:

7.2 Authorised person:

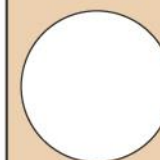
Authorised person:

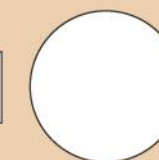
Prof. Perica Vasiljević, Ph.D., Dean

Prof. Dragan Antić, D.Sc., Rector

7.3 Official seal and signature:

Official seal and signature:





8. INFORMATION ON THE SYSTEM OF HIGHER EDUCATION IN THE REPUBLIC OF SERBIA

Approximate age ↑

