**STANDARDS FOR ACCREDITATION OF SECOND LEVEL STUDY PROGRAM OF HIGHER EDUCATION – MASTER ACADEMIC STUDIES:**

**aDVANCED dATA aNALYTICS IN BUSINESS (120 eCtS)**

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**INTRODUCTORY TABLE**

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| Name of the study program: | Advanced Data Analytics in Business |
| Higher education institution where the study program is performed: | University of Niš, Faculty of Economics |
| Educational – scientific/educational – artistic field: | Social and Humanities Sciences |
| Scientific, professional or artistic field: | Economic Sciences |
| Type of study: | Master Academic Studyies |
| Scope of study expressed in ECTS credits: | 120 ECTS |
| Diploma title: | Master of Business Informatics |
| Lenght of study: | 2 year (4 semester) |
| The year in which the realization of the study program began: |  |
| Year when the realization of the study program will start (if the program is new): | Academic 2022/2023 year |
| Number of students studying in this study program: |  |
| Planned number of students who will enroll in this study program: | 25 |
| Date of acceptance of the program by the relevant body (specify): | 19.04.2022.  Senate of the University of Niš |
| Language in which the study program is conducted: | english and serbian |
| Year when the program was accredited: |  |
| Web address where the data about the study program are: | [http://www.eknfak.ni.ac.rs/src/MAS-ADA](http://www.eknfak.ni.ac.rs/src/MAS-ADA.php)  [www.ada.ac.rs](https://www.ada.ac.rs/sp-uni/) |

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| **Standard 1. Structure of the study programme**  The study program contains elements determined by law (which are detailed in the relevant standards) |
| The structure of this study program is defined through the ERASMUS + project titled“ADA - Advanced Data Analytics in Business”. Teachers from four EU universities, each of which already successfully implements the programs of comparable structure, have already taken part in its design.   * Title and goals of the study program: “Advanced Data Analytics in Business”. The general goal of the study program is to provide students with the opportunity to acquire theoretical knowledge as well as to develop creative abilities and specific skills to perform certain tasks related to data science: use of scientific methods, processes, algorithms and system of analysis of structured and unstructured data and inference, i.e. achieving appropriate competencies and academic knowledge on the one hand in the field of application of quantitative methods in economics and on the other in the field of information technologies for big data processing. * The type of study and the outcome of the learning process is in accordance with the law that determines the National Qualifications Framework: Master of Academic Studies * Professional, academic, scientific or artistic title: Master of Business Informatics. * Conditions for enrollment in the study program: For enrollment in the three-semester master’s academic studies can apply persons who have completed the relevant bachelor academic studies lasting three or four years, equivalent to 180 ECTS or 240 ECTS. * List of compulsory and elective areas of study, i.e. courses, with outline content: The list of courses with outline content is presented within standard 5 (Table 5.2.a Book of courses - study program). Students within the study program have compulsory and elective courses, and elective courses are selected from a list of offered elective courses. Each course is taught one semester. This study program has no modules. * Each student activity during the teaching process is monitored and evaluated according to the rules adopted at the Faculty level for each course, which are known to students in advance. * Manner of conducting studies and necessary time for conducting certain types of studies: Teaching is performed through lectures, exercises and other forms of teaching (office hours work, seminars, projects and cases, etc.). The Erasmus+ project provided all hardware and software that are necessary for active teaching, i.e. a state-of-the-art laboratory. The required time for conducting studies is four semesters. The curriculum contains six compulsory and six elective courses that are chosen out of twelve offered. The coursework takes three semesters. The fourth semester is dedicated to the internship and a master’s thesis. * Score value of each course expressed in accordance with the European Credit Transfer System (ECTS): Each compulsory course carries 8 ECTS, elective courses carry 7 ECTS. In the last semester students are required to conduct 90 hours professional practice in representative companies (3 ECTS) and write a Master’s thesis (27 ECTS). The study program has a total of 6 compulsory courses and six out of twelve elective courses. The first three semesters consist of 90 ECTS coursework. * The final thesis in the Master academic studies is given 27 ECTS. * Prerequisites for enrollment of individual courses or groups of courses: Prerequisites for enrollment of individual courses are listed in the book of courses of standard 5 (Table 5.2.a Book of courses - study program). * Possibility of choosing courses from other study programs, as well as conditions for transfer from other study programs within the same or related fields of study: The Faculty has established a framework for transferring credits from study programs of other higher education institutions, as well as the method of selecting courses from other study programs; If a student enrolls after finishing a part of its studies within other higher education institutions, the exams (credits) recognition procedure will be initiated subsequently in front of a standing committee. In case of international mobility under auspice of relevant inter-institutional agreements, the recognition is done based on official learning agreement and with assistance of an appointed coordinator. The procedures are stipulated in the relevant Faculty’s regulations (sub-laws). * The study program is conducted in Serbian and English. |
| **Attachments for standard 1:**  **Attachment 1.1.** <http://www.eknfak.ni.ac.rs/en/>,<http://www.eknfak.ni.ac.rs/src/Master-studije.php>, <https://www.ada.ac.rs> |

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| **Standard 2. The purpose of the study programme**  The study programme has a clearly defined purpose and role in the education system, avalible to the public. |
| The purpose of the study program MSc Advanced Data Analytics in Business is to educate students for the independent application of quantitative methods of analysis (mathematical and statistical methods and models) and the use of modern information technologies, in order to solve the most complex problems in various economic and scientific fields, which rely on big data analytics (business management, marketing, finance).  Through a combination of theory, methods and techniques from economic, business and organizational sciences with tools and procedures from information and computer sciences, students will be able to:   * perform highly professional, managemental and analytical tasks in various areas of business analytics, both in domestic and foreign organizations, * creatively, critically and expertly consider economic problems in accordance with modern trends and conditions in business, * make investment and financial decisions based on all available and differently formatted data, * analyze the problems of information management in the business environment and independently develop innovative solutions in the field of information and communication technology in organizations and society, * knowledge acquired in the field of business management, mathematics and statistics apply in certain programming languages.   The relevant knowledge, abilities and skills acquired in this study program can be used to perform tasks which are related to defining and formulating the development strategy, making operational and strategic decisions for the needs of company management, planning and forecasting variations of observed phenomena in the field of business, analysis of the content of social networks, analysis of payment in certain applications, online analysis and market research, all this based on the available data and the application of the appropriate programming language. |
| **Attachments for standard 2:**  **Attachment 1.1.** <http://www.eknfak.ni.ac.rs/en/>,<http://www.eknfak.ni.ac.rs/src/Master-studije.php>, <https://www.ada.ac.rs> |

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| **Standard 3: The objectives of the study programme**  The study programme has clearly defined objectives. |
| The objective of the study program is that students acquire appropriate competencies and professional knowledge, as well as to develop creative abilities and specific practical skills, necessary for performing tasks related to the field of advanced data analytics. Students are provided with knowledge related to concepts, models and methods of advanced data analysis, as well as knowledge related to algorithmic constructions and programming languages, in order to be able to independently process data, thereby providing decision support in various areas of business.  The objective is for students to master advanced data analysis techniques, in order to be able for independent analytical work necessary for data-based decision-making in various fields: market research, creating marketing strategies, making investment and financial decisions, improving customer relationships, choosing business models, etc. In this way, experts are trained to work in public and private business organizations whose business is based on the processing of big data.  The specific goals of the study program include:   * Introducing students to econometric methods and models used in the analysis of modern business; * Studying machine learning and training for the application of machine learning methods that are the basis of modern data analysis (regression, classifiers of nearest neighbors, decision trees, random noise, neural networks); * Mastering knowledge related to fortime series analysis and forecasting; * Training for independent work in programming languages ​​(R, Python, Hadoop, MATHRMATICA, Matlab); * Training for efficient data processing and presentation of obtained results using modern analytical tools (Microsoft Excel and Tableau); * Mastering the knowledge related to the data acquisition from various sources (MySQL, Excel, MongoDB, Hive) and its importance for business analytics; * Acquiring knowledge related to optimization packages in linear programming (PuLP and Pyomo); * Training for independent analysis of quantitative data for decision making on investment in securities (time series models, linear and nonlinear models, numerical procedures); * Understanding the importance of teams, as the most effective form of organizing any organization and their support for managerial decision making; * Developing awareness of the need for lifelong learning and training, in order to meet the requirements of a dynamic business environment. |
| **Attachments for standard 3:**  **Attachment 1.1.** <http://www.eknfak.ni.ac.rs/en/>,<http://www.eknfak.ni.ac.rs/src/Master-studije.php>, <https://www.ada.ac.rs> |

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| **Standard 4. Competencies of graduated students**  By mastering the study program, students acquire general and course-specific skills that are in the function of quality professional, scientific and artistic activity. The qualification description stemming from the study programme which must correspond to a certain level of the National Qualifications Framework. |
| 4.1. By mastering this study program, students acquire the following general abilities:   * analysis and synthesis of big data and based on that forecasting future trends of business; * by mastering the methods, procedures and processes of big data analysis for the purpose of business decision-making; * development of critical and self-critical thinking and approach related to the analysis of operational and financial data with the application of programming languages; * application of knowledge in practice; * development of communicational skills and dexterity, as well as a cooperation with the wider social and international environment; * professional ethics.   4.2. By mastering the study program, students acquire the following subject-specific abilities:   * fundamental knowledge and understanding of quantitative finance, digital marketing, online shopping and their application in the field of big data; * knowledge of R and Python programming languages and their application in the field of data science in business; * solving specific problems with the use of mathematical and statistical methods and appropriate programming languages; * connecting solid knowledge in the field of business economics, quantitative economic analysis, finance and computer science; * continuous monitoring and application of innovations in the profession; * development of skills and dexterity in the use of big data analysis in determining the state and predicting future trends of business; * use of information and communication technologies and appropriate programming languages in the field of big data.   4.3. Learning outcomes described according to the learning outcome descriptors of the National Qualifications Framework (level 7.1.)  **Knowledge:** Students will be possesses highly specialized academic and professional knowledge related to adequate theories, principles and processes, including evaluation, critical understanding and application in the field of advanced data analytics, as a basis for scientific and applied researches.  **Skills:** Students will be solved complex problems in an innovative way that contributes to the development in the field of advanced data analytics, managing and conducting complex communication, interaction and cooperation with others from different social groups, application of complex methods, instruments and devices relevant to the field of advanced data analytics, as a basis for scientific and applied researches.  **Abilities and attitudes:** Students will be trained to act entrepreneurially and take on management jobs, independently and with full responsibility will be managed the most complex projects, plan and implement scientific and applied research and monitor the work and evaluate the results of others, in order to improve the existing practice. |
| **Attachments for standard 4:**  [**Attachment 4.1.**](../Attachment%204.1.%20Diploma%20supplement.docx)Diploma supplement |

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| **Standard 5. Curriculum**  The curriculum of the study program contains a list and structure of compulsory and elective subjects and modules and their description. The basic elective of art studies is built into the main subject. |
| The curriculum contains a list and structure of compulsory and elective courses, compulsory professional practice, the subject of the final thesis and the final thesis. The structure of the study program **Advanced Data Analytics in Business** consists of 6 compulsory and 6 elective courses, and the elective factor according to the positions where the student chooses courses is 46.25% in relation to the total number of ECTS points. Thus, students in the first semester have two compulsory courses (Programming for Business Applications 1and Optimization and Business Decision Making) and two elective courses that they choose from one basket of elective courses (2/4). In the second semester, the obligatory subjects are Introduction to Machine Learning in Business and Time Series Forecasting. In addition, students take two elective courses, which they choose from one basket that contains four courses. Compulsory courses in the third semester are Applied Econometrics and Quantitative Finance, while elective courses (two) are selected from a basket of elective courses that contains twice more courses as the number of courses to be chosen.  An integral part of the curriculum of the study program **Advanced Data Analytics in Business** is Professional Practice, which is performed in the fourth semester for 90 hours (3 ECTS). The final paper is presented in two positions: the subject of the final paper and the final paper, which includes drafting and defense. The credit value of the final paper is expressed in ECTS points (Subject of the final paper 10 ECTS and Final paper 17 ECTS).  Course specifications are given in the Book of Course. The detailed specification contains a brief description of every course, with title, type of course, year and semester of study, number of ECTS points, name of the teacher (s), goal of the course with expected learning outcomes, knowledge and competences, content, literature, teaching methods, knowledge assessment and other relevant information. The course book is available to students and other interested persons through the Faculty's website.  In the structure of the study program Master of Academic Studies Advanced Data Analytics in Business, the following groups of subjects are represented (in relation to the number of ECTS credits, approximately according to the total number of classes):  - Academically general education - 2.92%  - theoretically-methodological - 27.92%  - scientifically-professional - 19.17%  - professionally-applicative - 50.00%. |
| **Tables and Attachments for standard 5:**  **Table 5.1.** Schedule of subjects by semesters and years of study.  **Table 5.1 a.** Schedule of subjects by semesters and years of study for basic vocational studies (OSS), specialist vocational studies (SSS) and basic academic studies (OAS).  **Table 5.1b.** Schedule of subjects by semesters and years of study for second degree studies: MAS, MSS and SAS.  **Table 5.1c.** Subjects schedule by semesters and years of study for integrated studies.  [**Table 5.2.**](../../Табеле/Table%205.2.%20Specification%20of%20subjects%20-%20study%20programme%20ADA) Subjects specification.  [**Table 5.2.a.**](Table%205.2.%20a%20Book%20of%20subjects%20-%20study%20programme%20ADA.docx) Book of subjects - MAS study program Advanced Data Analytics in Business.  **Table 5.3** Elective subjects in the study program.  **Table 5.4.** List of subjects in the study program of the first level, by type of subject: (Academic-general educational subjects, Theoretical-methodological subjects, Scientific, ie artistic professional, Professional applied and Professional, ie artistic-professional subjects).  **Report 1.** Report on the structure of the study program Advanced Data Analytics in Business.  **Block table 5.1.** Study program with elective area-modules.  **Attachment 5.1.** Book of subjects (in the documentation and on the website of the institution).  **Attachment 5.2.** Decision on acceptance of the study program by the professional bodies of the higher education institution.  **Attachment 5.3.** Program of scientific research work  **Attachment 5.4.** Decision on accreditation of a scientific research organization. |

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| **Standard 6. Quality, modernity and international harmonization of the study program**  The study program is harmonized with modern world trends and the state of the profession, science and art in the relevant educational-scientific, ie artistic-educational field and is comparable to similar programs at foreign higher education institutions, especially within the European educational space. |
| **Description**  The master's program Advanced Data Analytics in Business enables students to make data-based decisions. They will learn how to apply analytical and computer tools for the purpose of making business decisions. Although based on rigorous technical and quantitative training, the program is also widely applicable. Obligatory and elective courses are sector-focused, and focused on solving real business problems, which provides students with the opportunity to adapt the program to their interests.  In order to provide education that is intellectually demanding, and which acquires knowledge and skills about world trends and the state of the profession and science in the relevant educational and scientific field, the Faculty has harmonized its study program Advanced Data Analytics in Business, in all relevant categories, with european standards. The Faculty has specially adapted its study program to the study programs offered by the following accredited universities:   1. **University of Ljubljana, School of Economics and Business, Master's Programme in Business Informatics** <http://www.ef.uni-lj.si/graduate/busifno>   [http://www.ef.uni-lj.si/content/static\_english/podiplomski\_izbirni](http://www.ef.uni-lj.si/content/static_english/izobrazevanje/podiplomsko/podiplomski_izbirni.asp)   1. **University SGH, Warsaw School of Economics, Master's Programme in Advanced Analytics – Big Data**   <http://oferta.sgh.waw.pl/en/master/programmes-en/aa/Strony/default.aspx>  <https://dziekanat.sgh.waw.pl/informatory/informator_2021_opis_sl_sm.pdf>  <https://www.sgh.waw.pl/en/accreditations>   1. **RWTH Achen University, Business School, Master's Program in Data Analytics and Decision Science**   [https://www.business-school.rwth-aachen.de/en/programs/m-sc-data-analytics-and-decision-science/](https://www.business-school.rwth-aachen.de/en/programs/m-sc-data-analytics-and-decision-science/%20)  <https://www.business-school.rwth-aachen.de/en/rankings-accreditation/>  Based on the analysis of the content that is processed at the institutions with which the comparison was made, it is recognized that the study program Advanced Data Analysis in Business contains similar subjects as the study programs of these institutions. In order to provide professional practice for its students, the Faculty of Economics in Nis has signed agreements on business cooperation with numerous business entities. Having in mind the engagement of students in solving numerous practical problems, it can be concluded that students spend relatively approximate time in direct practice, as well as their colleagues who are studying abroad. After passing the exams from the master's academic study program and defending the master's thesis, the student acquires the academic title of master of business informatics. At the Faculty used the software tools: Microsoft Word, Microsoft Excel, Tableu, MS Project, R, Python, SPSS, STATISTICA, Hadoop, MapReduce, PySpark, MATHEMATICA, Matlab, PuLP, Pyomo, SQL, MySQL, XLS, HTML, MongoBD, Hive, pygal, Matplotlib, Plotly, ggplot2, SAP and BALANCE. |
| **Attachments for standard 6:**  **Atachment 6.1., 6.2., 6.3., 6.4.** Documentation about minimum three accredited international study program, with whom is the program compatible  **Attachment 6.5.** PdF document of curriculum of accredited foreign study programs with which the study program is harmonized (list of subjects). |

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| **Standard 7. Enrolment of students**  In accordance with social needs and its resources, the higher education institution enrolls students in an appropriate study program based on the success in previous schooling and testing their knowledge, aptitudes and abilities. |
| On the study program Advanced Business Data Analytics candidates are enrolled on the basis of a public call announced by the Faculty of Economics, University of Nis.  The right to enroll in this study program have persons who have completed basic academic studies at еconomic faculties and achieved 240 ECTS or 180 ECTS, as well as persons who have completed basic studies at economics faculties under regulations valid until the entry into force of the Law on Higher Education, without taking the entrance exam.  The right to enrol in this study program also have persons who have completed basic academic studies at non-economic faculties and achieved 240 ECTS or 180 ECTS, as well as persons who have completed basic studies at non-economic faculties, according to regulations valid until the entry into force of the Law on Higher Education, provided they pass the entrance examination.  Bearing in mind that the teaching program Advanced Data Analytics in Business is realised in English, candidates need to have appropriate proof of English language proficiency: Cambridge Advanced Certificate in English (CAE) / IELTS (International English Language Testing System) / completed secondary education in English language.  The order of candidates for enrolment in the study program Advanced Data Analytics in Business is determined on the basis of general average grade achieved in undergraduate studies, and for those who take the entrance exam based on the general average grade achieved in undergraduate studies and results on the entrance exam.  The general act of the Faculty, i.e. the University, it may be prescribe other criteria for determining the order of candidates for enrolment in master's academic studies.  The study program Advanced Data Analytics in Business is a new study program and has not been realized so far.  Classes in the study program will be performed in shifts before and in the afternoon, in accordance with the organization of classes in other study programs of the institution. |
| **Tables and Attachments for standard 7:**  **Table 7.1.** Overview of the number of students enrolled at the study program in this year and in previous two years.  **Table 7.2.** Overview of the number of students enrolled at the study program across years of study in this school year.  **Attachment 7.1.** Public call for enrolment of students;  **Attachment 7.2.** Decision about appointment of commission for enrolment of students.  **Attachment 7.3.** Criteria for enrolment of students (excerpt from the Statute of the Faculty). |

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| **Standard 8. Assessment and advancement of students**  Student assessment is performed by continuous monitoring of student work and on the basis of points earned in fulfilling pre-examination obligations and taking exams. |
| The work of students in mastering each subject is continuously monitored during classes and is expressed in points. Core courses in the study program Advanced Data Analytics in Business carry 8 ECTS credits, while elective courses carry 7 ECTS credits. By fulfilling the pre-exam obligations and taking the exam, the student can achieve a maximum of 100 points. The study program determines the proportion of points obtained in pre-examination obligations and on the exam, whereby pre-examination obligations participate with a minimum of 30 and a maximum of 70 points. The overall success of the student in the course is expressed by a grade from 5 (failed) to 10 (exceptional). The student's grade is based on the total number of points that the student has gained by fulfilling pre-exam obligations and taking exams, and according to the quality of acquired knowledge and skills.  The study program Advanced Data Analytics in Business, in addition to testing theoretical knowledge, places special emphasis on evaluating the application of theoretical knowledge to relevant real problems.  Within the study program, the realization of 18 subjects is planned, of which students take 12. Each subject has an elaborated assessment methodology which includes winning points for teaching activities and practical exercises, seminar work, homework, project presentation, colloquium and final exam.  The student's success in the exam is expressed by grades:   |  |  |  |  | | --- | --- | --- | --- | | Grade | Description | Number of points | Non-numerical grade | | 10 | Exceptional | 91-100 | А+ | | 9 | Great | 81-90 | А | | 8 | Very good | 71-80 | Б | | 7 | Good | 61-70 | Ц | | 6 | Sufficient | 51-60 | Д | | 5 | Did not pass | До 50 | Ф |   The faculty is obliged to keep permanent records of passed exams.  Transitional grades are entered in the records and the student index, and grade 5 is entered only in the records. |
| **Tables and Attachments for standard 8:**  **Table 8.1.** Summary list of points across courses, winning by students during semester and examinational activities.  **Table 8.2.** Statistical data about advancement of student at study programs.  [**Attachment 8.2.**](Table%205.2.%20a%20Book%20of%20subjects%20-%20study%20programme%20ADA.docx)Book of subjects, website of the institution [http://www.eknfak.ni.ac.rs/src/MAS-ADA](http://www.eknfak.ni.ac.rs/src/MAS-ADA.php%20%20) |

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| **Standard 9. Teaching staff**  For the realization of the study programme has been provided teaching staff with the necessary scientific, artistic and professional qualifications. |
| Faculty of Economic Niš employs 59 teachers and 2 associates who perform teaching and research work. For the realization of the study program for master's academic studies Advanced Data Analytics in Business, the faculty hires 22 teachers and 1 associate with the necessary scientific and professional qualifications. The structure of teachers engaged in the mentioned study program is as follows: 12 full professors, 6 associate professors, 4 assistant professors, and 1 associate. From the stated number, there are 3 teachers from other higher education institutions and 3 visiting teachers. Teachers and associates accept modern ideas and methods of work by European educational trends. The number of engaged teachers and associates corresponds to the needs of this study program.  Except for appropriate diplomas, engaged teachers and associates of the faculty have proven their professional qualifications and competencies with:   * a large number of published publications (textbooks, scripts, collections of assignments, practicums), * a large number of scientific and professional papers published in domestic and international journals, * active participation in domestic and international gatherings and symposiums, etc. |
| **Attachments for standard 9:**  **Table 9. 0**. Total data on teaching staff in the institution (the list is formed when entering data into the electronic form, the institution is obliged to enter all required data in this table).  [**Table 9.1.**](Table%209.1.a.%20Book%20of%20teachers%20-%20study%20programe%20ADA) Scientific, artistic and professional qualifications of teachers and assignments in teaching.  [**Table 9.1.а.**](Table%209.1.a.%20Book%20of%20teachers.docx)Teachers book - study program Advanced data analytics in business.  **Table 9.2.** List of engaged full-time teachers in the study programme / all programms / other HEIs.  **Table 9.3.** List of part-time teachers in the study programme / all programms / other HEIs.  **Table 9.4.** List of other engaged teachers - additional work on the study programme / all programms / other HEIs.  **Table 9.5.**  List of associates engaged full-time in the study programme / all programms / other HEIs.  **Table 9.6.**  List of associates engaged part-time in the study programme / all programms / other HEIs.  **Table 9.7.** List of other engaged associates - additional work on the study programme / all programms / other HEIs.  **Table 9.8.** Summary overview of the number of all teachers by fields, and narrower scientific or artistic fields engaged in the study programme / all programms / other HEIs.  **Attachment 9.1.** Excerpts from the electronic database (EDB) of the Tax Administration of the Republic of Serbia (PURS) with signature and stamp in electronic and paper form with the Request.  **Attachment 9.2.** Employment contracts, election to titles, diplomas, consents, statements, MA and M1 / M2, full-time teachers in the study programme / all programms / other HEIs.  **Attachment 9.3.** Employment contracts, election to titles, diplomas, consents, statements, MA and M1 / M2, part-time teachers in the study programme / all programms / other HEIs.  **Attachment 9.4.** Employment contracts, election to titles, diplomas, consents and statements, teachers - additional work on the study programme / all programms / other HEIs.  **Attachment 9.5.** Employment contracts, titles, diplomas, consents, statements, MA and M1 / M2, full-time associates in the study programme / all programms / other HEIs.  **Attachment 9.6.** Employment contracts, election to titles, diplomas, consents, statements, MA and M1 / M2, part-time associates in the study programme / all programms / other HEIs.  **Attachment 9.7.** Employment contracts, election for titles, diplomas, consents and statements of associates - additional work on the study programme / all programms / other HEIs.  **Attachment 9.8.** Rulebook on the selection of teaching staff at the Institution.  **Attachment 9.9.** Contracts on hiring teachers from abroad in the study program.  **Attachment 9.10.** Decision of the Senate and the Council on the election of a visiting professor.  **Attachment 9.11.** Proof of residence for foreign citizens issued by the competent authority. |

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| **Standard 10. Organizational and material resources**  Appropriate human, spatial, technical-technological, library and other resources that are appropriate to the nature of the study programme and the projected number of students are provided for the implementation of the study programme. |
| For a total of 2375 students at all levels of study (Undergraduate studies program Economics 475 \* 4 years = 1900; Undergraduate studies program Economics 180 25 \* 3 years = 75; Master course Economics 245 \* 1 year = 245; Master course Advanced Business Data Analytics 25 \* 2 year = 50; Doctoral course Economics 35 \* 3 years = 105), the faculty has provided all the necessary resources.  The faculty employs 59 teachers and 2 associates who perform teaching and research work. For the realization of the study program of master's academic studies “Advanced Data Analytics in Business”, the faculty hires 22 teachers and 1 associate with the necessary scientific and professional qualifications. The structure of teachers engaged in the mentioned study program is as follows: 12 full professors, 6 associate professors, 4 assistant professors, and 1 associate.  The faculty has provided adequate space for quality teaching in master's academic studies. The space meets all relevant technical-technological and hygienic requirements and appropriate construction and use permits have been provided for it. All premises are addressed at Trg kralja Aleksandra 11 in Niš. For persons with special needs is ensured conditions for their unhindered movement (access ramp, elevator, toilet).  Students can use the student reading room (100.51 m2) with 72 seats and the library (261.13 m2). For the needs of the study program, the required number and structure of titles are provided. High-quality wireless internet is available to students  The faculty has modern equipment (personal computers, laptops, printers, scanners, projectors, smart boards, etc. equipment) necessаry for teaching, according to the adopted programs for individual subjects and the functioning of the integrated information system. |
| **Attachments for standard 10:**  **Table 10.1.** List of rooms with an area in the higher education institution where the study programme is taught.  **Table 10.2.** List of equipment for the study programme.  [**Table 10.3.**](Table%2010.3.%20List%20of%20library%20units%20relevant%20to%20the%20study%20program.docx) List of library units relevant to the study programme.  **Table 10.4.** List of textbooks available to students in the study programme.  **Table 10.5.** Coverage of compulsory subjects by literature (books, collections, practicums ...), which are in the library or are on sale.  **Attachment 10.1.** Proof of ownership, contracts of use or leases.  **Attachment 10.2.** Excerpt from the inventory book.  **Attachment 10.3.** Proof of possession of information technology, number of internet connections, etc. (these attachments are the same as the attachments given in the documentation for accreditation of the institution, they are attached to the program only in the electronic version). |

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| **Standard 11. Quality control**  The quality control of the study programme is carried out regularly and systematically through self-evaluation and external quality control. |
| The Teaching-Scientific Council of the Faculty of Economics in Nis forms the Commission for Quality Assurance, which monitors and implements the program of self-evaluation and evaluation of the quality of the faculty’s work in the process of implementing the master's study program. The commission consists of five members.  Quality control of the master's study program implies regular and systematic monitoring of its implementation and taking measures to improve quality in accordance with self-evaluation and quality policy assessment and the textbooks policy.  The quality control procedure takes into account the students' assessment of the master's study program, which is determined by their survey at the end of each school year, and the self-evaluation of the quality of the master's study program is performed every three years.  The results of the survey on the evaluation of the study program of master studies are adopted by the Quality Assurance Commission, the Teaching-Scientific Council of the Faculty, and the Quality Committee of the University of Nis. |
| **Attachments for standard 11:**  **Table 11.1.** List of members of the commission of organizational units in charge of quality at the Institution.  [**Table 11.2.**](file:///F:\Users\IlijaK\AppData\Local\Downloads\Tabele\Tabela%2011.2.docx) List of members of the Quality Committee, if any.  **Attachment 11.1.** Report on the results of self-evaluation of the Faculty of Economics in Nis.  **Attachment 11.2.** Self-evaluation report of the study program - OAS and MAS for 2019-20.  **Attachment 11.3.** Publicly published document - Quality Assurance Policy of the Faculty of Economics in Nis.  **Attachment 11.4.** Publicly published document - Quality Assurance Strategy of the Faculty of Economics in Nis.  **Attachment 11.5.** Rulebook on textbooks at the Faculty of Economics in Nis.  **Attachment 11.6.** Excerpt from the Statute of the Faculty of Economics in Nis, which regulates the establishment and scope of work of organizational units in charge of quality. |

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| **Standard 12. Studies in world language**  A higher education institution may organize a study program in the world language for each field and each educational-scientific field and educational-artistic field if it has human and material resources that enable the teaching content to be realized in accordance with the standards. |
| The study program of Master of Academic Studies “Advanced Business Data Analytics” will be conducted in Serbian and English. The Faculty of Economics in Nis has the human and material resources to organize classes in foreign languages.  Teachers and associates who are engaged in the study program “Advanced Business Data Analytics” have the appropriate competencies for teaching in English, proven by relevant documentation. Also, a significant number of teachers and lecturers from reputable European universities who will teach in English are included in the classes. In addition to the attached evidence of English language proficiency, all teachers and associates have a large number of published papers in English, a significant number of professional stays at foreign higher education and scientific institutions, as well as great participation in international conferences, seminars, and symposiums.  Over 100 library units in English are provided for bilingual teaching, as well as teaching materials and teaching aids. The service that works with students is trained to provide services in English. Public documents and administrative documentation are issued on forms printed in Serbian and English. The faculty’s website is available in Serbian and English and provides all necessary information for current and future students.  By the Faculty Statute and Enrollment Competition conditions, students enrolling in the “Advanced Business Data Analytics” study program must possess satisfactory language competencies in English, which are proven by relevant certificates when applying to the Competition for enrollment in the study program. |
| **Indicators and attachments for the standard 12:**  **Attachment 12.1.** Documentation in world language (item 12.9 of the Instruction).  **Attachment 12.2.** Documentation in Serbian and world language (if accredited in both languages).  **Attachment 12.3.** Evidence that the requirements of the Guidelines for the Application of Standards 12 have been met.  **Attachment 12.4.** Evidence of appropriate competencies of teachers and associates for teaching in that language.  **Attachment 12.5.** Proof of student competencies in the world language in which the study programme is conducted. |