Универзитет у Бањој Луци
ЕКОНОМСКИ ФАКУЛТЕТ
FACULTY OF ECONOMICS
University of Banja Luka

STUDY PROGRAM OF THE FIRST CYCLE STUDIES AT THE FACULTY OF ECONOMICS, UNIVERSITY OF BANJA LUKA

STUDY PROGRAM

"BUSINESS INFORMATICS"

2018

CONTENTS

Introduction

The Faculty of Economics, University of Banja Luka, is a higher education institution within the University of Banja Luka, whose main activity is scientific teaching and research work. The Faculty of Economics in Banja Luka was established by the Decision of the Municipal Assembly of Banja Luka No. 01-012/75 of 6 February 1975. The Faculty of Economics was developed from the Department of the Faculty of Economics in Sarajevo, which began its activities on 1 November 1974. The Faculty of Economics possesses all necessary licenses for work and fully meets the requirements prescribed by the Law (Decision on establishing the conditions for the start of activities of higher academic institution, Decision No. 07.1-4462/07 of 2 July 2007; Decision of the entry in the court register, Decision No. 1-587-00 of 13 September 2007, and the License for work, License No. 07.23/602-3900/09 of 22 June 2009). In 2013, the University of Banja Luka was accredited and entered into the Register of Higher Education Institutions, which is kept by the Agency for Development of Higher Education and Quality Assurance of the Republic of Srpska. Today, the University of Banja Luka has 17 faculties with 58 study programs of the first cycle studies, 65 study programs of second cycle studies and nine study programs of the third cycle studies.

The teaching process is carried out by 811 teachers and associates who are full-time employees. In addition, University employs 170 teachers as employees in additional employment, 168 visiting professors from abroad and 121 expert associates for the implementation of clinical practice. Administrative and technical support is provided by 559 employees.

Currently, 14,699 students from all over the Republic of Srpska and abroad are studying at the University. So far, 31,500 students graduated from basic studies, 350 students earned their master's degrees, 1,150 students earned their magister's degrees and 645 students earned their PhD degrees.

The mission of the Faculty of Economics is education and training of highly educated academic and professional staff, development of market-oriented competencies of students[1], as well as scientific research and cooperation at national, regional and international level with the scientific-research institutions, governmental and nongovernmental institutions and industry.

The vision of the Faculty of Economics:

The Faculty of Economics, University of Banja Luka is a modern, developed, progressive and open Faculty, which represents the backbone of economic development of the Republic of Srpska.

The main goal of the Faculty of Economics, University of Banja Luka is to become a leader in the field of higher education and scientific research within the Republic of Srpska and Bosnia and Herzegovina, and broader, in the regional context.

The specific goals of the Faculty of Economics, University of Banja Luka are:

1. Continuous improvement of the quality of teaching process in the I, II and III cycle studies, harmonized with requirements of the real sector and the principles of the Bologna process;
2. Improvement of the competencies of teaching and associate staff and the student learning outcomes by constant innovations in teaching process and scientific research work, and participation in international projects;
3. Strengthening of international cooperation and the position of the Faculty of Economics, University of Banja Luka abroad.

[1] In the following text we will use the terms student, candidate, teacher, manager and other technical terms as gender-neutral terms that relate to both female and male gender (author's note).

The current curriculum *Economics and Business Management* was licensed on 17 November 2014 and at the beginning of the academic year 2017/2018 we enrolled students of the fourth year of study in four departments. After numerous analyzes, including the adopted Self-Assessment Report 2017, regularly adopted annual reports and annual work plans of the Faculty of Economics, University of Banja Luka in the period from 2012 to 2016, conducted surveys among students on the reasons for enrollment at the Faculty of Economics, University of Banja Luka, at the end of December 2016 on a sample of 109 students of the first year of study, labor market analysis and real sector needs, based on regular contacts with IT (Information Technology) Cluster Banja Luka, whose co-founder is the Faculty of Economics, University of Banja Luka and IT companies, the Chamber of Commerce of the Republic of Srpska, the City Development Agency Banja Luka and the labor market analysis, we have decided to launch a new study program *Business Informatics*.

The Faculty of Economics, University of Banja Luka is the leader in the Republic of Srpska in the quality of its academic programs, teaching staff, and exit profiles of students. Graduates of the Faculty of Economics, University of Banja Luka today are managing directors of banks, insurance companies, microcredit institutions, managers of private and public small, medium and large enterprises, chief auditors, leading accountants, economic analysts, experts in international economics, marketing, management and entrepreneurship. In the last two decades the President of the Republic of Srpska, Prime Ministers, Ministers, and Vice Governors could be proud of having our diploma.

We pay special attention to student entrepreneurship. As a result of the systematic work of professors, assistants, researchers and students through the work of the Center for Project Management and Entrepreneurship of the Faculty of Economics and the Center for Entrepreneurship and Revitalization of Enterprises of the Faculty of Economics, in cooperation with the institutions of entrepreneurial infrastructure of the University of Banja Luka - UNI BL (University Entrepreneurship Center and Innovation Center Banja Luka, whose one of the founders is the University), in the last four years a dozen of startup companies was launched by our students, mainly from the field of digital marketing and IT. It is the growth of interest for highly educated experts in the field of business informatics and information technologies in the Republic of Srpska, but also throughout the region of the Western Balkans, that was a signal for the development of the new curriculum.

By analyzing the labor market in Serbia, in which there are currently several study programs in the field of business informatics, we can conclude that the profile of graduated economists in the field of business informatics was recognized by the labor market in Serbia as less technically competent than electrical engineering engineers – department of computer science, engineers of organizational sciences – department of IST, as well as BSc in Computer Science (Faculty of Sciences), but they are far better positioned in jobs related to knowledge of business process, business analytics, data analysis and business intelligence, introduction of integrated business solutions (ERP, CRM, etc.), as well as managerial and organizational jobs in IT companies and IT departments of other companies. Also, all graduates find the job immediately, which is the case in the labor market in Bosnia and Herzegovina, where there is a strong demand for this profile of experts.

Students with a diploma of the Faculty of Economics, University of Banja Luka, with built competencies and internationally recognized diploma (many of our students continued their education in the II and III cycle studies in Austria, Germany, Great Britain, Hungary, Italy, Canada, the United States, Serbia, Montenegro, Croatia, Slovenia and other countries, according to the records of the Student Services of the Faculty of Economics, University of Banja Luka) may be employed in the public sector, business non-financial and financial sector, self-employed and employed in the third sector. Diploma of the Faculty of Economics, University of Banja Luka is a brand. This is confirmed by Bachelors of Economics, Masters of Economics, Magisters of Economic Sciences and Doctors of Economic Sciences who perform the high duties of statesmanship in the Republic of Srpska and Bosnia and Herzegovina, as well as manage financial institutions, institutions in the Government of the Republic of Srpska, and public and private companies. The needs of the labor market were our main driver in the development of the new curriculum *Business Informatics*. The development of the

new curriculum was in line with the European Standards and Guidelines for Quality Assurance in the European Higher Education Area (ENQA, 2015), with the active participation of the relevant experts employed at the University of Banja Luka, the Chamber of Commerce of the Republic of Srpska, IT company Lanaco and DVC Solution from Banja Luka and students of the first and second cycle studies of the Faculty of Economics, University of Banja Luka.

1. NAME AND GOALS OF THE STUDY PROGRAM BUSINESS INFORMATICS OF UNDERGRADUATE ACADEMIC STUDIES – THE FIRST CYCLE STUDIES

Studies of the I cycle at the Faculty of Economics have already been organized at the study program *Economics and Business Management*.

The study program *Business Informatics* is the second study program of the Faculty of Economics, University of Banja Luka, which will be implemented in parallel with the existing study program, with the provided student mobility for both study programs. The study program *Business Informatics* has no departments and modules.

The goals of the study program are to train future graduates of economics – BSc in Computer Science, to:

- independently or in the team, successfully perform tasks in the area of business economics and management with an emphasis on tasks related to the narrow scientific field of Business Informatics;
- apply the principles of agile project management in solving practical business problems and to systematically search for innovative business solutions through the teamwork;
- apply a multidisciplinary approach in solving business and scientific challenges in the field of Business Informatics and related fields, as well as to improve making of business and other decisions by applying economic theory and theory in the field of Business Informatics as well as the method of scientific decision making;
- continue studies in the second cycle studies, i.e. master study.

Since it is a basic academic undergraduate study at the Faculty of Economics, University of Banja Luka, the goal of this study program is to educate experts whose competences will also be general in character, with a broad and comprehensive insight into academic knowledge and practical activities in the field of the economy, but with an emphasis on competencies, knowledge and skills in the field of the narrow scientific field of Business Informatics.

Functionally, the goal of this study program is to offer students of the Faculty of Economics, University of Banja Luka, basic knowledge to present concepts and specific tools of modern marketing research of the market, to create, plan, realize, monitor and control economic and business-informatics phenomena and problems. On the other hand, the goal of this program is to provide the students with the necessary competencies, knowledge and skills for conducting economic and business-informatics activities in enterprises, profit and non-profit organizations, as well as in the public sector bodies and institutions, both on domestic and international level. The program provides the necessary theoretical and applied knowledge, competencies and skills that enable graduate students to independently analyze and solve problems in the field of economics, business management and business-informatics problems. The program offers a broad education and training of students in analytical skills for effective and responsible decision making, both on macro and micro level. The curriculum conceptualized in this way provides students with the opportunity to choose different types of employment including self-employment, demanding occupations and challenging careers.

Since this is a directed study program, by completing the first cycle students can choose to continue their education through additionally focused study program of the second cycle (master), or they can opt for the process of self-training and career building by acquiring a concrete business experience.

We especially emphasize the importance of developing socially responsible behavior among students and that they in addressing economic and business-informatics problems take into account social, political and environmental issues, which are fully in line with this study program, as well as

contemporary socio-economic trends in entrepreneurial society of knowledge, that is, the so-called digital society of the 21st century.

1.1. Foundation of the study program

The study program of the I cycle studies *Business Informatics* is based on:

- Law on Higher Education ("Official Gazette of the Republic of Srpska", No. 73/10, 104/11, 84/12 and 108/13);
- Statute of the University of Banja Luka, Statute of the Faculty of Economics, University of Banja Luka and other normative-legal documents of these institutions;
- Rules of Study in the I and II cycle studies at the University of Banja Luka;
- Rules of Study in the III cycle studies at the University of Banja Luka;
- Rulebook on part-time studies at the University of Banja Luka;
- Magna Charta: Magna Charta Universitatum;
- Bologna Declaration: The European Higher Education Area Joint Declaration of the European Ministers of Education convened in Bologna on the 19th June 1999;
- Prague Communiqué: Towards the European Higher Education Area – Communiqué of the meeting of European Ministers in charge of Higher Education in Prague on 19th May 2001;
- Sorbonne Declaration: Joint declaration on harmonization of the architecture of the European higher education system (the Sorbonne, Paris, 25th May 1998);
- Salamanca Statement: Message from the Salamanca Convention of European Higher Education Institutions;
- Bosnia and Herzegovina (BiH) higher education qualification framework;
- The Framework of Qualifications for the European Higher Education Area (QF EHEA);
- European Qualifications Framework for lifelong learning (EQF);
- Convention on the Recognition of Qualifications concerning Higher Education in the European Region (Lisbon Convention);
- Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).
- Study programs in the area of the former Yugoslavia and beyond.

1.2. Structure of the study program

The study program of undergraduate academic studies *Business Informatics* lasts four years and has 240 ECTS points. This is a unique and complex study program, which was created in accordance with the latest achievements of the economics and informatics science, contemporary practice of renowned faculties in Europe and the world, as well as the needs of our economy and society. The study program is defined to be a complete, comprehensive and harmonized with other study programs of the Faculty (in the studies of I, II and III cycle) according to the model 4 + 1 + 3.

The program has a clearly defined purpose and role in the educational system of higher education. The goals of the study program, learning outcomes, skills and knowledge, acquired through its mastery, are precisely defined and aligned with the strategic objectives of the University of Banja Luka, as well as the strategic goals of the Faculty of Economics, University of Banja Luka.

The first two years of studies at the study program *Business Informatics* at the Faculty of Economics, University of Banja Luka are common with the study program *Economics and Business Management* (they differ in two compulsory subjects) and provide the basic knowledge, skills and competencies intended for graduate economists. The third and fourth year of study are of the specialist and narrow-specialist character and are intended for studying of certain professional disciplines in the narrower scientific field of Business Informatics and its related fields of science providing highly specialized knowledge, skills and abilities intended for the profile of the study program itself.

At the level of the study program, the appropriate percentage of electiveness is provided, thus giving the necessary flexibility to the undergraduate academic studies. Of the total of 32 subjects (four subjects per semester and compulsory professional practice in all semesters in the third and fourth year of studies) and the final paper, five subjects, including the final paper, are elective subjects, which makes 15.51% of the total number of subjects. All four groups of subjects are represented in the structure of the study program, in appropriate proportions: academic and general and educational, theoretical and methodological, scientific and professional, and professional and applicable subjects.

Students choose elective subjects by survey, no later than two working weeks before the start of each new academic year, taking into consideration that:

- the minimum number of students for the elective subject in the second year of study is 50. If students choose in the survey two or more elective subjects with a minimum of 50 candidates per subject, the lectures will be carried out in parallel in all subjects chosen by the allowed minimum number of students;
- the minimum number of students for the elective subject in the third year of study is 20. Students choose elective subjects by survey. If students choose in the survey two or more elective subjects with a minimum of 20 students per subject, the lectures will be carried out in parallel in all subjects chosen by the allowed minimum number of students;
- the minimum number of students for the elective subject in the fourth year of study is ten. Students choose elective subjects by survey. If students choose in the survey two or more elective subjects with a minimum of ten candidates per subject, the lectures will be carried out in parallel in all subjects chosen by the allowed minimum number of students.

The teaching process in this study program is implemented according to the plan of teaching and by applying various pedagogical methods in order to develop different abilities and skills in students, and to allow everyone, regardless of their different learning styles, to acquire new knowledge under similar conditions. The plan of teaching complies with the Decision on the method of monitoring and valorization of students' knowledge, which is adopted by the Scientific-Educational Council of the Faculty of Economics, University of Banja Luka, just before the start of the academic year, and the Rules of Study in the I and II cycle studies at the University of Banja Luka.

1.3. The purpose of the study program

The vision of this study program implies sustaining and improving of the national and leadership position of the Faculty of Economics, University of Banja Luka in the context of academic university study programs, and profiling that offers knowledge and competence in the field of general and business economics, economic analysis as well as business informatics and application of information technology in for-profit, governmental and non-profit organizations.

Study Program *Business Informatics* follows the dynamic changes in the economic and information and communication environment, trying to meet the needs for new competencies, knowledge and skills, which are required from graduate economists by businesses and the economy, as well as state institutions, with emphasis on specific business informatics knowledge that modern business often requires from graduate economists.

The study program prepares students for a wide range of occupations from the field of general and business economics, with emphasis on specific knowledge in the field of business informatics and the application of modern information and communication technologies in business, offering them the latest theoretical knowledge and practical skills in the mentioned fields. It is a specialized program within the scientific field of Economics, namely the narrower scientific field of Business Informatics, which particularly emphasizes the multidisciplinary approach to academic studies. The emphasis is on combining and harmonizing macro and micro approaches, combining and harmonizing comparative, international, national, sectoral, branch and business approaches to the study of contemporary business-informatics, as well as economic subjects, topics and problems.

The study program is multidimensional and modularly designed and structured, so that it goes from the general to the particular and specific knowledge that are offered to students in the following fields: economic analysis and policy; economic theory, economic policy and development, fiscal economics, monetary economics, international economics; entrepreneurship, marketing, management, commerce, accounting, auditing, corporate finance, actuarial science, operations research, statistics, business informatics, as well as a series of related knowledge, skills and competencies.

In addition to creating and producing competent and required educational profiles in the labor market that would be quickly employed, the purpose of this complex and multidimensional study program is to enable students to continue their studies at master, specialist (II cycle studies) and doctoral studies (III cycle studies) in the field of Business Informatics, but also in the field of economic and other related narrow scientific fields.

The appropriateness of the study program is checked and tested within its scientific foundation on all current trends of development of the economic science, as well as in the sciences related to the application of information and communication technologies in business operations in the national and world frameworks. Therefore, the curriculum is compatible with the curricula of the same or similar modules at foreign universities, while curricula of certain subjects take into consideration all scientific achievements of foreign and domestic authors.

The curriculum also follows all novelties in the field of education, such as qualification standards (QS) and relevant occupational standards (OS), which are interconnected, as well as directions of the development of higher education in the Republic of Srpska and Bosnia and Herzegovina in order to provide quality, flexible and efficient educational process.

2. MODEL OD THE STUDY PROGRAM

The model of the study program is 4 + 1 + 3. The undergraduate study lasts for four years, i.e. eight semesters or 240 ECTS points, master study lasts for one year, i.e. two semesters or 60 ECTS points, and a doctoral study lasts for three years, i.e. 180 ECTS points, making a total of 480 ECTS points.

3. SCIENTIFIC AREA TO WHICH THE STUDY PROGRAM BELONGS

The study program of the I cycle studies *Business Informatics* with a four-year undergraduate academic study belongs to the scientific area 5.0.0. Social sciences, scientific field 5.2.0. Economics and Business.

The subjects in the study program Business Informatics belong to the scientific areas categorized in the narrower scientific fields according to the Nomenclature for fields and sub-fields of science of the Rulebook on amendments of the Rulebook on scientific and artistic areas, fields and sub-fields ("Official Gazette of the Republic of Srpska" No. 27/2010) and the Decision of the Senate of the University of Banja Luka, No. 02/04-3-2082-64/12 of 13 September 2012:

Business Informatics, Actuarial Science, Economics, Economic Planning and Development, Economic Analysis, Fiscal Economics, Marketing, International Economics, Monetary Economics, Operations Research, Business Finance, Entrepreneurial Economics, Accounting and Auditing, Theoretical Economics, Statistical Analysis and Management.

1.0.0 Natural Sciences, 1.1.0 Mathematics, 1.1.1 Mathematical Analysis and Application

1.2.2. Information science and bioinformatics (software development)

4. TYPE OF STUDIES AND OUTCOMES OF THE LEARNING PROCESS

4.1. Type of studies

The study program of the I cycle studies *Business Informatics* (four-year undergraduate academic studies) lasts for eight semesters, a total of 240 ECTS points.

4.2. The outcomes of the learning process

After the successful completion of the I cycle studies, students will gain qualifications with which they will:

- demonstrate basic and specific knowledge in the field of economics, management and business informatics applicable to problem solving and decision-making in an uncertain business environment and managing simple and complex organizational systems in economic and non-economic business activities, as well as in the field of application of information and communication technologies in business operations;
- successfully apply the tools of microeconomic and macroeconomic analysis on the basis of which they will be trained to make short-term and long-term business decisions using critical evaluation, in conditions of prosperity but also in conditions of recession, crisis and scarcity of information on the market;
- be able to apply the basic methods of acquiring knowledge and applied researches in the field of economics and business informatics, applying the available approaches to solve the problem according to the principle of rationality of available inputs, i.e. resources and available time;
- be able to transfer and exchange ideas and information, to define and make a clear distinction between relevant and irrelevant issues that need to be addressed, as well as to provide possible solutions of the problems to the wider audience who do not possess specific knowledge in the field of economics, through the application of modern means of communication and language skills;
- be able to start the business independently or in a team, by applying the acquired knowledge, as well as the ability for teamwork;
- successfully use modern tools and methods in working with information and communication technologies and apply them in modern business operations;
- present effectively their ideas and outcomes of work to a large number of stakeholders using modern communication channels and devices;
- be able to understand business processes, to model business information systems, as well as to coordinate and manage development of business software;
- be trained and motivated to systematically search for innovative solutions to contribute to meeting needs and creating values for all stakeholders in business and organizational processes;
- build skills and ongoing motivation for continuation of their education at the second cycle studies and the active application of the concept of lifelong learning.

4.3. Students' learning outcomes

With regards to general knowledge and skills students would acquire and adopt basic information and guidelines of economic science with an emphasis on knowledge and skills from the narrower scientific field of business informatics, both through theoretical, mathematical and statistical, as well as practical prism.

With this in mind, students would be able to understand the role and importance of optimizing the relationship between investments and effects, both at the macro and micro level. They would be able to present verbally, graphically, mathematically and econometrically economic ideas and analysis,

including their mutual relationship. In addition, they would be able to discuss, analyze and evaluate government policies and to evaluate the economic performance of our economy, other economies and the global economy. By studying economics students should understand and apply key concepts: opportunity costs, profit maximization, motivation and encouraging of human resources, analysis of equilibrium, disequilibrium and stability, strategic thinking, expectations, predictions and surprises, the importance of marginal analysis, system and process approach and dynamics.

These are basic principles of effective functioning and progressive development, which are of crucial and decisive importance for the life perspective of individuals, families, entrepreneurs, small, medium or large companies, for-profit and non-profit organizations, national, international or global organizations and institutions. Students who learn about, understand, practically recognize and apply the basic principles of economically logical functioning and progressive growth and development in any of these spheres of possible application, do not need to worry for their future.

During the study, students are expected to gain some transferable skills, which in their development are gained by studying economic principles and economic methods. These skills can be summarized as: abstraction; analysis, deduction and induction; quantification, planning, and decision-making.

Students' learning outcomes are further profiled by the directed study program of *Business Informatics*.

Through this program students would acquire competencies, knowledge and skills to perform structural system analysis and analysis of business processes, to model and design a business information system, as well as to develop appropriate models, from data flow model to object-link model and relational model. In addition, they would master the basics of databases, programming, multimedia technologies, agile project management and digital marketing.

Students would be able to manage the development of business information systems, ICT projects and teams in ICT companies, as well as ICT organizational units in organizations, enterprises and institutions.

Upon completion of the study program, students would acquire skills, knowledge and competences for starting their own ICT companies or to work as freelancers on a domestic, foreign or virtual labor market.

Students would be trained in establishing information systems for knowledge management in various forms of commercial and non-commercial entities, for independent data analysis, identifying principles in data, as well as decision-making based on the results of work through business intelligence systems and analytical tools.

4.4. Professions that students will be able to perform after graduation

Students will be able to perform tasks in the following professions: system analyst, consultant for the introduction of business information systems, consultant/associate in the field of business informatics, administrator and educator in the field of ERP systems, auditor of business information systems, data analyst and business intelligence expert, analyst and administrator of business processes, chief information officer (CIO), entrepreneur in the field of digital communications and digital marketing consulting, ICT project manager, scrum master, human resources manager in ICT company or ICT organizational unit, chief digital officer (CDO), digital transformation engineer, ICT market analyst, public and private sector consultant in the process of digital transformation.

5. ACADEMIC TITLE

After completion of the first cycle studies, a student receives the academic title of Bachelor of Science in Economics – Business Informatics with diploma supplement with indicated study program Business informatics – 240 ECTS points.

Abbreviation
BSc in Economics – Business Informatics, with addition of the study program Business Informatics.

6. REQUIREMENTS FOR ENROLLMENT IN THE STUDY PROGRAM

All candidates who have completed four years of high school have the right of entry in the first cycle studies (Statute of the Faculty of Economics, University of Banja Luka, articles 33, 34 and 35) under the terms of the competition announced by the Ministry of Education and Culture, at the end of classes in the summer semester, according to the academic calendar adopted by the Senate of the University of Banja Luka before the beginning of each academic year.

General provisions of requirements for the enrollment are:

a. The basic requirement for the enrollment in the study program of the first year of the first cycle studies – *Business Informatics*, is completed four years of high school education in the Republic of Srpska and Bosnia and Herzegovina or equivalent education abroad.

b. The Government of the Republic of Srpska decides on the number of full-time and part-time students who are enrolled in the first year of the I and II cycle studies, in accordance with Articles 5 and 6 of the Law on Higher Education ("Official Gazette of the Republic of Srpska", No. 73/10, 104/11, 84/12 and 108/13).

c. No later than two months before the entrance exam, the future students have the opportunity to prepare for the entrance exam by studying the Guide with the manual for taking the entrance exam, freely available at www.ef.unibl.org and by participating in the preparatory classes, which the Faculty of Economics, University of Banja Luka may organize if there is an interest of potential candidates.

d. Candidates who apply for the enrollment take the entrance exam from the field of general culture in the following areas: basics of economics, accounting, mathematics, statistics, sociology, history, geography, and Serbian language and literature. The written qualifying exam will be done in the form of the test, which will consist of 20 questions and last for 45 minutes. Each question contains four offered answers of which only one is correct, that is answered by circling the corresponding letter in front of the answer. It is allowed to circle only one answer. For correctly circled answer student gets 2.5 points, while for incorrectly circled answer 0.5 points are subtracted. If none of the offered answers is circled, then points are not subtracted. The maximum number of points that can be achieved on the test is fifty (50). The success in high school allows a maximum of fifty (50) points. The number of points achieved on the basis of the general success is obtained by multiplying the average grade of all subjects from the four-year high school by 10 (ten). The candidate may accomplish a maximum of 100 (one hundred) points in the entrance exam by both criteria. In the case of the same total number of points between two or more candidates, the candidate with a higher number of points achieved in the entrance exam has the advantage.

e. Candidates who have not achieved at least 15 points in the entrance exam and who have achieved an average grade of less than 2.6 during the four years of high school education do not have the right to enroll at the University of Banja Luka.

f. The implementation of the entrance exam and determination of the order of candidates (ranking list) is performed by the Commission for the enrollment of students of the Faculty of Economics, University of Banja Luka, in cooperation with the Central Commission for the enrollment in the study programs of the University of Banja Luka.

g. After the entrance exam Commission for the enrollment of students announces the preliminary results of the entrance exam on the website www.ef.unibl.org and on the message board of the Faculty, and announces deadlines for possible appeals and insight into the tests for a maximum of 48 hours after the announcement of preliminary results of the entrance exam.

h. Upon the expiration of the appeal period, the Committee for the entrance exam announces the final list of candidates not later than 5 (five) days from the entrance exam, on the basis of which the enrollment of students will be done.

i. The students of the Faculty of Economics, University of Banja Luka, who have fulfilled the condition for enrollment in the third year of studies in the study program *Economics and Business Management*, have the right to enroll in the third year of study with the obligation to pass exams which are different in the two study programs.

7. LIST OF COMPULSORY AND ELECTIVE SUBJECTS

List – review of compulsory and elective study subjects is given within the Tabular review of subjects at the study program *Business Informatics*.

All subjects in the study program are classified according to their status. Depending on whether the student is required to enroll them, the subjects are divided into compulsory (C) and elective (E). At the beginning of the academic year or semester, students enroll compulsory subjects and choose and enroll the required number of elective subjects offered (as described in the sub-title 1.2. Structure of the study program, pages 7 and 8).

In the structure of the study program *Business Informatics* elective subjects include a total of 29 ECTS points (one elective subject in the second year of study, two in the third and two in the fourth year of study, including the final paper) which makes 12.08% of ECTS points compared to the total number of (240) ECTS points, or 15.51% of the subjects, including the final paper

In this way the flexibility of the study program is provided, which demonstrates the extent to which students have the possibility to participate in the creation of their own education. This concept of study - "directed toward students" - accepts students as partners and involves their active participation in the educational process during the entire process of study.

Students enroll, perform pre-exam obligations and take exams in each compulsory subject. If during the academic year, the student does not pass the exam in a compulsory subject, he/she enrolls that subject again in the next academic year, according to the provisions of the Rules of Study in the I and II cycle studies at the University of Banja Luka (more information on regulations and guidelines can be found on the official website of the Faculty of Economics, University of Banja Luka http://www.ef.unibl.org/).

In terms of pre-exam obligations and exams in elective subjects, students perform pre-exam obligations and take exams in subjects they have chosen and enrolled at the beginning of the academic year or at the beginning of the winter semester, according to the Decision on the method of monitoring and valorization of students' knowledge, which is adopted by the Scientific-Educational Council of the Faculty of Economics, University of Banja Luka, just before the start of each academic year.

The following division of subjects in compulsory and elective provides systematization of subjects by semesters and years of study in respect of the students' obligations, acquiring the necessary knowledge, skills and work skills, broader education and other requirements of the profession of

graduate economist. This division allows the connection of the subject contents by semesters and years of study, i.e. it allows establishing the order of subject studying and defining prerequisites for the enrollment of individual subjects or group of subjects.

7.1. Tabular overview of subjects in the study program

The first year of study

Subject name	Winter semester		Summer semester		ECTS
	L	E	L	E	
Basics of Economics	4	2			8
Enterprise Economics	4	2			8
Business Informatics	3	2			6
Mathematics for Economists	4	4			8
Basics of Statistical Analysis			4	3	8
Methodologies of Software Development			3	2	7
Financial Accounting			4	3	8
Management			4	2	7
TOTAL:	15	10	15	10	60

The second year of study

Subject name	Winter semester		Summer semester		ECTS
	L	E	L	E	
Microeconomics	4	3			8
Monetary and Public Finance	4	2			8
Introduction to Programming	4	3			8
Elective Subject 1	3	2			6
Macroeconomics			4	3	8
International Economic Relations			4	2	7
Financial Management			4	2	8
Financial Mathematics			4	2	7
TOTAL:	15	10	16	9	60

Elective subjects in the second year:
Business Intelligence Systems,
Knowledge Management Systems,
Organization of Business Systems,

Note on the selection of elective subjects:

- the minimum number of students for the elective subject in the second year of study is fifty. If students choose in the survey two or more elective subjects with a minimum of fifty candidates per subject, the lectures will be carried out in parallel in all subjects chosen by the allowed minimum number of students.

Note on subject prerequisites:

Prerequisite for the subject Microeconomics is the passed exam in the subject Basics of Economics from the first year of study.

Prerequisite for the subject International Economic Relations is the passed exam in the subject Basics of Economics from the first year of study.

Prerequisite for the subject Financial Mathematics is the passed exam in the subject Mathematics for Economists from the first year of study.

The third year of study

Subject name	Winter semester		Summer semester		ECTS
	L	E	L	E	
Economic-Mathematical Models and Methods	4	4			8
Marketing	4	2			7
Integrated Business Software Solutions	4	2			7
Elective Subject 2	3	2			6
Professional Practice					2
Human Resources Management			4	2	8
Databases			4	3	7
Entrepreneurship and Innovations			4	3	7
Elective Subject 3: Advanced Foreign Language for Economists			3	2	6
Professional Practice					2
TOTAL:	15	10	15	10	60

Elective subjects in the third year:

1. Advanced Foreign Language (English, German or Russian) for Economists,
2. Customer Relationship Management (CRM) Systems,
3. Software Engineering,
4. Web Programming.

Note on the selection of elective subjects:

- the minimum number of students for the elective subject in the third year of study is twenty. If students choose in the survey two or more elective subjects with a minimum of twenty candidates per subject, the lectures will be carried out in parallel in all subjects chosen by the allowed minimum number of students.

The fourth year of study

Subject name	Winter semester		Summer semester		ECTS
	L	E	L	E	
E-business	4	3			8
Strategic Management	4	2			7
Project Management	4	3			7
Elective Subject 4	3	2			6
Professional Practice					2
Multimedia and Creative Technologies			4	3	6
Digital Marketing			4	2	6
Design of Business Information Systems			4	2	6
Business Process Management			4	2	5
Professional Practice					2
Elective Subject 5: Final Paper					5
TOTAL:	15	10	15	10	60

Elective subjects in the fourth year:

1. Object-oriented Programming,
2. E-government,
3. Quality Assurance in IT.

Note on the selection of elective subjects:

- the minimum number of students for the elective subject in the fourth year of study is ten. If students choose in the survey two or more elective subjects with a minimum of ten candidates per subject, the lectures will be carried out in parallel in all subjects chosen by the allowed minimum number of students.

Final paper: The final paper will be written in the subject of student's choice in the form of professional (final) paper and will be defended before the three-member committee. For the successfully defended final paper ECTS points will be awarded as well as the unique mark from 5 (five) to 10 (ten), pursuant to Article 58 of the Rules of Study in the I and II cycle studies at the University of Banja Luka. The final mark from the final exam is part of the average mark of passed exams.

Study program: *Business Informatics*
Level of study: First Cycle (undergraduate)

Table 7.1. LIST OF COMPULSORY SUBJECTS

No.	Subject Name	Narrow Scientific Field
1	Basics of Economics	Theoretical Economics
2	Enterprise Economics	Theoretical Economics
3	Business Informatics	Business Informatics
4	Mathematics for Economists	Mathematical Analysis and Application (Faculty of Sciences)
5	Basics of Statistical Analysis	Statistical Analysis
6	Macroeconomics	Theoretical Economics
7	Financial Accounting	Accounting and Auditing
8	Management	Management
9	Microeconomics	Theoretical Economics
10	Monetary and Public Finance	Monetary Economics and Fiscal Economics
11	International Economic Relations	International Economics
12	Financial Management	Business Finance
13	Financial Mathematics	Actuarial Science
14	Marketing	Marketing
15	Economic-Mathematical Models and Methods	Operations Research
16	E-business	Business Informatics
17	Human Resources Management	Management
18	Entrepreneurship and Innovations	Entrepreneurial Economics
19	Project Management	Management
20	Software Development Methodologies	Business Informatics
21	Databases	Computer Science (Faculty of Electrical Engineering)
22	Integrated Business Software Solutions	Business Informatics
23	Business Process Management	Business Informatics
24	Strategic Management	Management
25	Introduction to Programming	Information Science and Bioinformatics (Software Development) (Faculty of Sciences)
26	Multimedia and Creative Technologies	Information Science and Bioinformatics (Software Development) (Faculty of Sciences)
27	Digital Marketing	Marketing
28	Design of Business Information Systems	Business Informatics

LIST OF ELECTIVE SUBJECTS

No.	Subject Name	Narrow Scientific Field
1	Business Intelligence Systems	Business Informatics
2	Knowledge Management Systems	Business Informatics
3	Organization of Business Systems	Management
5	CRM Systems	Business Informatics
6	Software Engineering	Computer Science (Faculty of Electrical Engineering)
7	English for Economists II	Specific languages – English language
8	German for Economists II	Specific languages – German language
9	Russian for Economists II	Specific languages – Russian language
10	Web Programming	Information Science and Bioinformatics (Software Development) (Faculty of Sciences)
11	E-government	Business Informatics
12	Quality Assurance in IT	Management
13	Object-oriented Programming	Information Science and Bioinformatics (Software Development) (Faculty of Sciences)

7.2. Matrix of the learning outcomes of the study program Business Informatics

Program learning outcomes / Subject learning outcomes		PROFESSIONAL COMPETENCIES			GENERAL COMPETENCIES		
		Group competencies			Instrumental	Interpersonal	System
		knowledge	skill	attitudes			
GENERAL	Basics of Statistical Analysis						
	Business Informatics						
	Mathematics for Economists						
BASIC	Basics of Economics						
	Enterprise Economics						
	Microeconomics						
	Macroeconomics						
	Management						
PROFESSIONAL	Financial Accounting						
	Monetary and Public Finance						
	International Economic Relations						
	Economic-Mathematical Models and Methods						
	Financial Management						
	Human Resources Management						
	Project Management						
	E-business						
	Entrepreneurship and Innovations						
	Financial Mathematics						
	Marketing						
	Strategic Management						
HIGHLY SPECIALIZED	Software Development Methodologies						
	Databases						
	Integrated Business Software Solutions						
	Business Process Management						
	E-business						
	Introduction to Programming						
	Multimedia and Creative Technologies						
	Digital Marketing						
	Design of Business Information Systems						
ELECTIVE	Business Intelligence Systems						
	Knowledge Management Systems						
	Organization of Business Systems						
	Object-oriented Programming						
	Customer Relationship Management (CRM) Systems						
	Software Engineering						
	Advanced Foreign Language for Economists (English, German or Russian)						
	Web Programming						
	E-government						
	Quality Assurance in IT						

7.3. Descriptions and specifications of subjects (the book of subjects)

Each responsible teacher is obliged, in accordance with the adopted form, to prepare a detailed plan and content of the subject (the book of subjects), based on the decision of the Department, immediately before the beginning of the semester, in accordance with the Decision on Approval of the Academic Calendar of the Senate of the University of Banja Luka.

Minimum content of the book of subjects is:

- information about the responsible teacher and assistants, the schedule of compulsory consultations and dates of classes and exercises;
- syllabus of the subject with a description of the teaching units and dates of classes, exercises and colloquiums;
- list of test questions;
- list of required and supplementary literature.

8. METHOD AND TIME REQUIRED FOR THE REALIZATION OF THE STUDY

The first cycle studies (four-year undergraduate academic studies) lasts eight semesters with a total of 240 ECTS points. The study is organized as regular and part-time, and it consists of lectures, exercises and regular consultations, including written exams (colloquia) during 15 weeks in the winter and summer semesters. The schedule of these teaching activities is defined by the academic calendar for the current academic year, which is adopted by the Senate of the University of Banja Luka.

8.1. Way of conducting the studies - traditional

Studies according to the adopted program of study are conducted in the traditional (classical) way. This way of conducting the studies represents organizing studies in the seat of the higher-academic institution and is conducted through direct contact between teachers and students in the form of lectures, as well as through direct contact between assistants and students in the form of practical exercises. During the academic year classes are organized in two semesters. One semester of study is valuated with 30 ECTS points.

Subjects are one-semester. The curriculum contains a maximum of four subjects per semester.

Forms of teaching at the Faculty are standardized. The total student engagement consists of:
- direct teaching,
- independent work of the students.

8.2. Direct teaching

Direct teaching is accomplished through the continuous contact between students and teachers and assistants, in accordance with the course calendar and semester schedule of pre-exam and exam obligations as a main part of the established annual work program, which the Faculty adopts for each school year. The scope of direct teaching with students is between 20 and 25 classes per week. On the first cycle studies, a minimum of 50% of direct teaching should be lectures, and the remaining should be exercises and other forms of direct teaching.

The direct teaching is accomplished in the form of:
- lectures,
- exercises,
- consultations.

Professional practice, study and research work and the final paper on the first cycle studies are not included in the scope of direct teaching, but they are entered into the curriculum and ECTS points are allocated to them.

Lectures are a form of direct teaching where the teacher presents teaching contents of study subjects to a group of students. Key contents planned by the study subject that should be complemented by studying literature are presented within the lectures. Lectures are generally performed using "ex cathedra" method on one of the following ways:
- presentation of teaching contents only through oral presentation of the teacher;

- presentation of teaching contents from electronic records with the help of computers, video projectors, smart boards, as well as the supporting oral presentation of the teacher;
- presentation of teaching contents from electronic records with the help of server computers and computer network as well as the supporting oral presentation of the teacher.

While presenting contents a teacher uses other educational tools, such as photos, drawings, models, samples, magazines, catalogs, standards, tables and the like.

Regardless of the way of presentation, before the beginning of classes students are provided with auxiliary teaching materials in written or electronic form, which are organized by teaching units, i.e. short excerpts from lectures of teaching units prepared in an appropriate form, which are known as handouts in the computer presentation. The reason for this is to ensure quality following of lectures using "ex cathedra" method which significantly reduces the volume of students' notes during lectures, thus providing a stronger concentration of students during teacher's presentation.

The quality of auxiliary teaching materials is ensured in a way that teaching units presented in the form of short written materials intended for teaching are necessarily subject to review by the teacher.

Auxiliary materials of this kind by programming teaching units are available to students either as samples for copying provided by teaching assistants or in the form of handouts placed on the website of the Faculty of Economics, University of Banja Luka, which can be downloaded from the website of the particular study subjects.

The teacher encourages students to actively participate in lectures by asking questions, analyzing and discussing presented contents, and the like. As a special form of teaching, the teacher has the right and possibility to organize guest lectures of experts from the real sector, managers of successful companies, banks, and other colleagues from the other departments of the Faculty Economics, University of Banja Luka, recognized experts in the particular narrow scientific fields.

Lectures are conducted in the amphitheater or classrooms.

The contents of lectures of each study subject can be found in the curriculum of the subject that teachers prepare in accordance with the defined subject contents.

Exercises are a form of active teaching, which includes practicing of topics presented in lectures. They are held in classrooms for smaller number of students. The work of students in exercises is naturally connected with the forms of independent work, such as the development of theoretical and practical seminar papers, assignments for independent work and other pre-exam obligations.

The goal of the exercises is to:

- clarify the topics from lectures;
- illustrate the variety of possible solutions and encourage the development of creative thinking of students;
- illustrate and supplement subject contents with practical experience;
- take into account the particularity of each study subject.

Analyzes, explanations and discussions of the given task, requiring the active participation of all students are conducted during exercises. Practical examples within topics presented during lectures are shown. Exercises are conducted together with all the students in small groups. Content of exercises of each study subject is included in the curriculum of the subject that teachers prepare in accordance with its defined content.

Exercises are held in amphitheater, classrooms and computer rooms, and they have mostly the demonstration and active-practical character.

Auditory exercises are intended to further deepen and more closely clarify previously presented contents in lectures on specific examples. They are mainly conducted using the "*ex cathedra*" method and are held in classrooms with smaller number of students. Special emphasis is placed on the active participation of students during the exercises.

Calculating exercises are intended for joint solving examples as well as computational and numerical problems and are applied in study subjects that involve solving of computational tasks.

Computer exercises are intended for solving examples in the field of business informatics, accounting or examples whose solution requires the use of computers. Computer exercises are normally held as practical exercises on computers where the number of students should match the number of available computer resources (workstations), where previously presented contents in lectures are practical and more closely clarified on specific examples.

Auxiliary materials for the realization of exercises are available to students prior to the classes, either as samples for copying provided by teaching assistants or in the form of electronic record placed on the website of the Faculty, which can be downloaded from the websites of the particular study subjects. Application of this kind of organization ensures active participation of students in the practical teaching and practical mastering of contents of the study subject.

Practical exercises are intended for the acquisition of practical skills of students through the implementation of practical thematic tasks in the real business and manufacturing environment. This type of teaching is implemented using the "*case study*" method and it includes the preparation of practical seminar papers of students on specific tasks in the so-called pilot enterprise, as a training ground for exercises. Pilot-enterprise is a specific business and manufacturing system (it can be a factory, small or medium enterprise, institution or some other form of organization) which can generate necessary practical data for the realization of a practical seminar paper. During exercises tasks are defined and teams for their realization in a specific pilot enterprise are formed. The exercises are conducted in small groups in specialized classrooms allowing students to be familiarized with a variety of practical examples from the contents of the study subject.

Linguistic exercises represent a form of teaching in which students are further practically introduced with structural elements of the advanced business foreign language. As a rule, they are held with a smaller number of students who practice on concrete examples all relevant elements of the business foreign language, such as pronunciation, grammar and spelling, with special emphasis on the business foreign language adapted to the IT sector. Auxiliary materials for the realization of exercises are available to students prior to the classes, either as samples for copying provided by teaching assistants or in the form of audio recordings intended for the realization of classes, placed on the website of the Faculty, which can be downloaded from the websites of the particular study subjects. The primary goal that is achieved by using this form of work is ensuring active participation of students during the classes.

Consultations are a form of active teaching where the teacher and assistant hold consultations with students each working week. This form of active teaching is in a function of detailed clarification of topics presented and elaborated in lectures and exercises, as well as other forms of teaching. Analysis of results achieved by students in the pre-exam obligations and in the exam is conducted during consultations. Consultations are individual or group (with small groups of students, generally with a team that is working on a common task). The primary objective of the consultations is to assist students in independent and group work and mastery of the content of each study subject and exam preparation. Special consideration is given to topics that interest students in terms of deepening their knowledge of the considered study subjects and that represent upgrading of topics addressed in lectures and exercises, as well as further professional orientation of students. In a word, consultations should result in improved quality of teaching and achievement of objectives and learning outcomes in each study subject, or the whole study program.

The teacher and assistant are required to provide at least two dates for consultations per week lasting two hours each. Dates of consultations should be posted on the door of the office and on the website of the Faculty, along with e-mail address of the teacher and assistant, which practically provides the possibility of permanent online contact between the teaching staff and students.

Visits to enterprises, institutions and organizations represent an active part of the teaching during which students are introduced to the real business environment. This form of teaching is planned within specific study subjects and implemented with all students. During the organized visits with the teacher or teaching

assistant, students have the opportunity to become familiar with the practical aspects of teaching contents of a given study subject within the respectful companies and institutions. The presence of all students is mandatory, and it is individually recorded.

8.3. Independent work of a student

The independent work consists of learning and teaching content analysis performed by the student in order to adopt the contents of the lectures and exercises. The students learn independently and prepare themselves for all forms of active teaching. Teacher and assistant follow and through consultations support the independent work of the student. Independent work of a student can be individual or group.

The number and content of the colloquiums, theoretical and practical seminar papers, assignments for independent work is standardized for all study subjects and defined in the description of the contents of each study subject in the study program.

Plan for the implementation of activities within the independent work of students is determined by the annual curriculum, which is adopted by the Faculty for each school year.

Independent work of a student is carried out in several forms:
- preparation for lectures and exercises,
- theoretical seminar paper,
- practical seminar paper or essay,
- assignment for independent work,
- preparation for the colloquium,
- preparation for the exam,
- professional practice and writing reports on voluntary work,
- preparation of the final paper.

Preparation for lectures and exercises is a form of independent work of a student on the preparation and independent study of contents presented by the teacher and assistant in lectures and exercises. Preparation includes obtaining of additional literature sources of information from the library, via the Internet, and otherwise. The extent of student's engagement in the preparation for lectures represents the level of active participation in the teaching process.

Theoretical seminar paper includes the topic that covers the entire theoretical content of the subject, and students realize them individually or as a group. Seminar paper is a text document which also contains the graphic elements with the topic of the subject content and represents pre-exam obligation of a student. The student, or a group of students, individually prepares the seminar paper and submits it in the printed form. During the preparation of seminar paper, the student consults with the teacher and teaching assistant. Theoretical seminar papers of students from particular teaching units within subjects are realized by assigning a topic, preparation for drafting, consultations and drafting of paper, making a presentation and preparation for its defense. This work has to be followed by the presentation of contents of the seminar paper in which all members of the student group have to be present. Application of this kind of organization ensures active participation of students in the teaching process and determination of the program content of the subject. Presentation of the seminar paper for most subjects is realized through the application of computer presentations created by students as an integral part of the seminar paper.

Auxiliary materials for the realization of this form of exercises are available to students prior to the classes, either as samples for copying provided by teaching assistants or in the form of audio recordings intended for the realization of classes, placed on the website of the Faculty, which can be downloaded from the websites of the particular subjects.

Practical seminar paper or essay is prepared in a team, in small groups. This is a text document which also contains the graphic elements with the topic of the subject content and represents pre-exam obligation of a student. Students' practical seminar papers or essays from particular teaching units within subjects are realized by assigning a topic, preparation for drafting, collection of data in the pilot

enterprise or institution, consultations and drafting of the paper, then the presentation and preparation for its defense.

In the introduction, through consultative exercises the tasks are first defined, and teams are formed for their realization in particular pilot enterprise or institution. Assigning tasks is followed by detailed instructions for the practical realization of the task and the technical processing, as well as outstanding examples of realized papers of students from previous generations.

The realization of the tasks performed by the students takes place during their visit or by collecting data on pilot enterprise or institution, during which students collect data necessary for the realization of practical task. Further work on the realization of practical seminar papers or essays is done through consultative joint work in small groups of students with a teacher or teaching assistant. Finally, teams present orally and defend publicly finished papers in front of the teacher or teaching assistant in the presence of all students. During the presentation of the seminar paper or essay, presence of all members of the student group is obligatory on the exercises.

Presentation for most subjects is realized through the application of computer presentations created by students as an integral part of the seminar paper or essay.

The main objective achieved by this paper is evaluation of the theoretical knowledge in practice. Auxiliary materials for the realization of this form of exercises are available to students prior to the classes, either as samples for copying provided by teaching assistants or in the form of audio recordings intended for the realization of classes, placed on the website of the Faculty, which can be downloaded from the websites of the particular subjects. Outstanding examples of realized papers of students from previous generations are available to students in the Library of the Faculty.

Assignment for independent work represents the student's independent work on solving arithmetic problems, computer tasks and exercises in a foreign language. The realization of the assignment for independent work consists of giving the assignment, preparation for drafting, drafting, consultations, and preparation for its defense. Student submits completed assignment to a teaching assistant in the printed form. Checking the accuracy of completed assignment is done by a teaching assistant during exercises with the active participation of the students.

Preparation for the colloquium is a form of independent work which tests student's performance in mastering of teaching content of the relevant subject. A mandatory colloquial assessment of students' knowledge is introduced within the two colloquiums for all study subjects. The colloquium is a pre-exam obligation of a student and it represents written assessment of knowledge from a part of the study subject, most often in the form of a test. At the colloquium student shows a continuous mastering of study subject contents, i.e. topics presented in lectures and revised in the exercises. The colloquium is typically performed in separate dates. Results of the colloquium are analyzed in the consultations or exercises. Colloquium is realized in accordance with the teaching calendar for the respective study subjects.

Preparation for the exam is the independent work by which the student with the help of the recommended literature and presented exam questions masters the curriculum presented in lectures and exercises. During the preparation for the exam, the teacher and teaching assistant are available to students for consultations. Before preparing the exam, the student is familiar with all elements of the evaluation of pre-exam activities as well as the criteria for taking the exam. A student is informed about all matters related to the exam, in the Rules of Study in the I and II cycle studies, the Statute of the Faculty of Economics and the Statute of the University of Banja Luka.

Professional practice. During the third and fourth year of study students are required to perform professional (vocational) practice. The professional practice is organized one day in a working week in the winter and summer semesters, according to the agreed schedule.

Students will attend the professional practice in an enterprise or other institution on the basis of a bilateral agreement between the Faculty of Economics, University of Banja Luka through the Office for Professional Practice and a company or an institution that organizes the professional practice. The professional practice will last 13 working days per semester (13 weeks out of a total of 15 weeks; two

weeks are devoted to written colloquia, i.e. a total of 26 working days during the academic year). In the professional practice a student will have a professional practice demonstrator from the institution where the professional practice will be conducted, and the professional practice demonstrator will keep a journal. The professional practice will carry 2 ECTS points per semester. In order to monitor students' practice, each student has a mentor among teachers who will review the practice journal and make a decision on whether the practice has been successfully completed or not.

- Students will be assigned to perform professional practice in companies/institutions that will sign bilateral agreements on professional practice with the Faculty of Economics, University of Banja Luka, Office for Professional Practice.
- Students will have the opportunity to propose companies/institutions in which they would like to perform professional practice. In this case, all communication with the company/institution will go through the Office for Professional Practice which will give consent, prepare the contract and other documentation for professional practice.
- It is also possible to go to professional practice through special programs of companies and institutions for at least one month, but only in periods when there are no regular classes. In that case as well, all communication with the company/institution will go through the Office for Professional Practice that will give consent, prepare the contract and other documentation for professional practice.

The Contract on Practice is signed between the Faculty of Economics, University of Banja Luka, a student and an employer, specifying the learning outcomes that need to be achieved. There should be clear procedures for evaluating learning outcomes and awarding ECTS points, which will be included in the final paper of students. The roles of the signatories in the process of specifying, achieving and evaluating learning outcomes must be clear. It is an opportunity for learning in working conditions and strengthening of professional competencies (professional development). The actual tasks performed in the workplace should be complementary to the content that is taught in the study program. The purpose of professional practice is:

- learning about specific models and techniques of work,
- improvement of working skills required in the workplace,
- development of new skills that facilitate employment, such as teamwork, use of technology and problem solving,
- opportunity to acquire skills gradually, from simple to complex,
- assessment in real conditions,
- forming an opinion on the relevance of the program contents for the workplace.
- providing a documentary basis for the preparation of the final paper.

Upon completion of the practice, the student prepares a report on the performed practice, and the knowledge gained through the practice as a rule, which is not mandatory, is described in the empirical and perspective part of the final paper. ECTS points are awarded after appropriate checking and assessment and achieved outcomes by the mentor teacher.

Final paper. The purpose of preparing the final paper is for a student to show the ability of independent approach in problem solving from the field of specific, common and general contents of the profession for which the student was capacitated during the studies at the Faculty, thereby using literature, theoretical or empirical researches, professional practice and basics of methodology of the subject discipline. The final paper is prepared in accordance with the Rules of Study in the I and II cycle studies and will be written in the subject of student's choice in the form of professional (final) paper and will be defended before a three-member committee. ECTS points and a numerical grade from 5 (five) to 10 (ten) will be awarded for successfully defended final paper, pursuant to Article 58 of the Rules of Study in the I and II cycle studies. The grade from the final paper will be calculated in the average grade.

Pursuant to the provisions of Articles 43-50 of the Rules of Study in the I and II cycle studies and Article 59 of the Statute of the University of Banja Luka, procedures for application and defense of the final paper in the first cycle studies are described in the following steps:

1. The final paper represents an independent professional processing of a particular problem by which the student proves that on the basis of the knowledge acquired during the studies he/she has mastered the given topic, that he/she has processed the topic in accordance with the determined methodology, that he/she knows how to use the professional literature and terminology which, of course, is correctly listed. The topic of the final paper is selected from the subjects which are part of the study program. Possible topics of the final papers are proposed by the subject teachers. Exceptionally, a student may be granted the topic of the final paper that he/she independently proposes, subject to prior consultation with the teacher with whom he/she wants to do the final paper. The basic literature is listed for each topic of the final paper.
2. Student registers the final (graduate) paper at the Student Services on the prescribed application form for the registration of the final (graduate) paper. The student can register topic of the final (graduate) paper having one non-passed exam.
3. In one academic year the teacher can take, as a mentor, a maximum of 15 final papers.
4. If the teacher does not fulfill the assigned quota of mentorships, he/she does not have the right to refuse a student who wants to get the topic of the final paper.
5. The student prepares the final paper individually. The mentor is obliged to follow the work of the student, to help the student with advice and to refer him/her to the literature.
6. The student forms a final paper in concept with all accompanying parts. The concept is submitted to the teacher - mentor for insight and review. The student is required to act upon instructions and comments of the mentor, otherwise the paper is returned to further refinement.
7. The teacher is required to review the paper and return it with comments no later than two weeks from the date of submission of the paper.
8. Student can change the topic of the final paper only once.
9. Student Services shall verify data in the student's personal file, within ten (10) days of the receipt of student's completed form.
10. On the basis of the written consent of the mentor on the finished final (graduate) paper, and if the student has passed all exams according to the curriculum, the Student Services notifies the mentor that the candidate is ready for the defense of the final (graduate) paper.
11. Student submits two bound graduate papers and the paper in PDF format on the CD to the Student Services and registers the final paper in the Student Services.
12. The defense of the final paper consists of oral presentation of the results of the paper, and explanations of extracted conclusions, as well as answers to the mentor's questions.
13. Student orally defends the prepared final paper before the mentor in one of the exam terms for graduate students. The defense of the final paper is public.
14. If the student fails the final paper, he/she has the possibility to defend the final paper again in the next exam term for graduate students.
15. The final paper and defense are graded with a unique grade from 5 (five) to 10 (ten) and it will be included in the final average grade.

8.4. Grading students

Examination and grading are harmonized with the learning outcomes and designed with a goal to determine whether the learning outcomes have been achieved or not. The successfulness of students in mastering every subject in the study program is expressed with points in accordance with the Decision on the method of monitoring and valorization of students' knowledge, which is adopted by the Scientific-Educational Council of the Faculty of Economics, University of Banja Luka immediately before the beginning of each academic year and continuously monitored during the classes in the semester.

The teacher grades students on the basis of expressed knowledge, stated facts and their understanding of the subject contents, acquired skills and shown capability to apply it in the real situations. Teacher's

requirements are based on the accessibility of all resources necessary for mastering the established curriculum (The Code of Teaching Ethics, Article 7).

Decision on the method of monitoring and valorization of students' knowledge must comply with the guidelines and general provisions of the Rules of Study in the I and II cycle studies at the University of Banja Luka.

By fulfilling pre-exam obligations and taking exams the student can earn a maximum of one hundred points. In the formation of the final grade of the student's performance in mastering the subject, pre-exam obligations participate with a maximum of 50 points, while the exam also participates with a maximum of 50 points.

Evaluation of the pre-exam obligations:

- attendance to all forms of classes, 2 points (2%),
- each written colloquium yields from 0 to 20 points (0-20%), i.e. a total of 0-40 points (0-40%),
- written or oral processing of essay, seminar or other assigned topic yields from 0 to 8 points (0-8%).

The final exam is taken orally, except subjects which due to the nature of teaching unit require combined, written and oral assessment of knowledge in the final exam.

The final exam is taken in public, in the presence of at least one student and assistant. It is not allowed to take the final exam behind closed doors with a single candidate.

If the final exam is registered by a close relative of the responsible teacher (child or spouse), the final exam will be taken before the teacher who has the election to the title in the narrow scientific field. If there is no other teacher in the same election to the title, the dean forms a three-member commission and schedules a term for taking the exam in the presence of exam commission.

List of subjects that are taken both orally and in writing is specified by the Scientific-Educational Council of the Faculty of Economics, University of Banja Luka, adopting the document entitled "Decision on the method of monitoring and valorization of students' knowledge." In the final exam student can achieve from 0 to 50 points (0-50%).

The teacher and assistant conduct regular recording and evaluation of attendance and engagement of students in classes as well as the evaluation of prepared and defended seminar papers (i.e. assignments for independent work) and colloquiums.

The total number of acquired points is converted into the final grade that demonstrates the success in mastering the subject and can vary from 5 (failed) to 10 (excellent - outstanding). Way of converting the total number of points, which is made of the sum of points achieved in the pre-exam obligations and in the exam, into the final grade, is shown in the following scale (table) of grading:

Table 8.3. Distribution of points and final grades

NUMBER OF POINTS	DESCRIPTIVE GRADE	GRADE
0–50	not passed	five (5)
51–60	sufficient	six (6)
61–70	good	seven (7)
71–80	very good	eight (8)
81–90	excellent	nine (9)
91–100	excellent - outstanding	ten (10)

After the exam responsible teachers announce the exam results on the website of the Faculty. Within 24 hours of the completion of the exam the teacher or assistant are required to submit to the Student Services the record of the held exam with all exam applications signed, including applications in which the mark

five (5) is registered. As a proof of completed handover, Student Services issues a completed form on the handover of records and exam applications, which are then signed by the subject teacher and Student Services officer.

After the end of the academic year and the completion of fall exam terms, the subject teacher announces a ranking list of all students who have earned a required minimum of 51 points in total obligations and passed the final exam. Awarding of ECTS points and grades will be made on the basis of that list, according to the percentage of success, using the following criteria:

Table 8.4. Ranking list of students who have passed the final exam

ORDER	GRADE
THE TOP 1% -10%	A
FOLLOWING 11% -35%	B
FOLLOWING 36% -65%	C
FOLLOWING 66% -90%	D
FOLLOWING 91% -100%	E

Students who have achieved 35 to 50 points on the basis of total obligations receive a grade FX (additional work for the successful completion of the exam is needed), and those who have achieved less than 35 points receive a grade F (much more work for the completion of the exam is needed).

9. POINT VALUE OF THE COURSE IN ACCORDANCE WITH EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM – ECTS

Awarding of points is based on the difficulty of the subject in terms of workload that students will have to invest in order to achieve the intended learning outcomes in a formal form. The total number of points awarded to a qualification is allocated to individual subjects in proportion to their share in the total workload required to achieve the intended learning outcomes.

Points are awarded for the total time required to achieve the intended learning outcomes, and it consists of:

- the number of classes of direct teaching,
- the time required to prepare for teaching and preparation of teaching tasks (preparing and arranging materials from classes, exercises or practices; writing essays, developing projects and seminar papers; collecting and studying of additional materials; practical work out of classes planned in the curriculum, etc.),
- exam preparation and exam taking.
    - Principle of annual student workload of 60 ECTS points within a 40-hour working week is a legal provision [Article 38] in the Republic of Srpska and it coincides with the European regulations in this area. Starting from the academic calendar of the University of Banja Luka (annual load is reduced to an academic year of study), it can be assumed that during the academic year, students have 45 working weeks (15 weeks per semester and 15 for the preparation and exams) and a load of 40 hours per week. In this case we get a total of **1800 working hours of student's work during one academic year**. Considering the fact that one school year bears **60 points**, it means that **one-point equals approximately 30 hours**.
    - In this way we can set a proportion:
    - X : 60 points = Y : 1800 hours
    - Admission for 1 point:

- Y = 1800 hours per academic year x 1 point / 60 points per year = 30 working hours.

Thus, the subject which bears 5 ECTS points involves 150 working hours, together with the classes. Assuming that the number of classes in this subject is 2L + 2E = 4 hours. That would in 15 weeks, as long classes per semester last, take a student 60 hours. The student would have 90 hours or a little over two weeks at his/her disposal for independent work and exam preparation. This includes the time the student spent to work on this subject during the period of classes. If the average student can master such a subject for 90 hours of work (including learning during classes), then the number of points is well allocated.

Table 9.1. Example for calculating ECTS points

2 hours of lectures	x 15 teaching weeks	= 30 working hours	
2 hours of exercises	x 15 teaching weeks	= 30 working hours	
	Total number of hours per semester		*= 60 working hours*
2 hours of learning for lectures	x 15 teaching weeks	= 30 working hours	
4 (or 2 x 2) hours of preparation for exercises and learning	x 15 teaching weeks	= 60 working hours	
	Total time of mastering the subject contents		*= 90 working hours*
	Total load		*= 150 working hours*

Example:

X : 60 points = Y : 1800 hours

X : 60 points = 150 hours : 1800 hours

X = 60 · 150 / 1800 = 5 points

During the teaching the allocated number of ECTS points is adapted to the actual workload. This is done within the internal procedures for quality assurance. Whichever method is used, the opinions of students and teaching staff are taken into account. Information on the progress and passing rate, and exam results are also important indicators. In the case of a large discrepancy between the estimated and actual workload the revision of ECTS points, learning outcomes or techniques in teaching and learning is performed.

Subjects classified by the point values are presented in Table 9.1. attached.

10. ESTIMATED NUMBER OF CLASSES FOR SPECIFIC SUBJECTS

Study program: Business Informatics

Level of study: First cycle studies (undergraduate academic studies)

Semester		Subject	Status	Study program	L	E	OFT	ECTS
1	1	Basics of Economics	C	a	4	2	0	8
	2	Enterprise Economics	C	a	4	2	0	8
	3	Business Informatics	C	a	3	2	0	6
	4	Mathematics for Economists	C	a	4	4	0	8
					15	**10**	**0**	**30**

Semester		Subject	Status	Study program	L	E	OFT	ECTS
2	1	Basics of Statistical Analysis	C	a	4	3	0	8
	2	Methodologies of Software Development	C	BI	3	2	0	7
	3	Financial Accounting	C	a	4	3	0	8
	4	Management	C	a	4	2	0	7
					15	**10**	**0**	**30**

Semester		Subject	Status	Study program	L	E	OFT	ECTS
3	1	Microeconomics	C	a	4	3	0	8
	2	Monetary and Public Finance	C	a	4	2	0	8
	3	Introduction to Programming	C	BI	4	3	0	8
	4	Elective Subject 1						
		Business Intelligence Systems	E	BI	3	2	0	6
		Knowledge Management Systems	E	BI	3	2	0	6
		Organization of Business Systems	E	a	3	2	0	6
					15	**10**	**0**	**30**

Semester		Subject	Status	Study program	L	E	OFT	ECTS
4	1	Macroeconomics	C	a	4	3	0	8
	2	International Economic Relations	C	a	4	2	0	7
	3	Financial Management	C	a	4	2	0	8
	4	Financial Mathematics	C	a	4	2	0	7
					16	**9**	**0**	**30**

Semester		Subject	Status	Study program	L	E	OFT	ECTS
5	1	Economic-Mathematical Models and Methods	C	a	4	4	0	8
	2	Marketing	C	a	4	2	0	7
	3	Integrated Business Software Solutions	C	BI	4	2	0	7
	4	Elective Subject 2: Advanced Foreign Language for Economists						
		Advanced English for Economists	E	BI	3	2	0	6
		Advanced German for Economists	E	BI	3	2	0	6
		Advanced Russian for Economists	E	BI	3	2	0	6
	5	Professional Practice	C					2
					15	**10**	**0**	**30**

Semester		Subject	Status	Study program	L	E	OFT	ECTS
6	1	Human Resources Management	C	a	4	3	0	8
	2	Databases	C	BI	4	3	0	7
	3	Entrepreneurship and Innovations	C	a	4	2	0	7
	4	Elective Subject 3:						
		Customer Relationship Management (CRM) Systems	E	BI	3	2	0	6
		Software Engineering	E	BI	3	2	0	6
		Web Programming	E	BI	4	3	0	6
	5	Professional Practice	C	a				2
					15	**10**	**0**	**30**

Semester		Subject	Status	Study program	L	E	OFT	ECTS
7	1	E-business	C	BI	4	3	0	8
	2	Strategic Management	C	a	4	2	0	7
	3	Project Management	C	a	4	3	0	7
	4	Elective Subject 4:						
		Object-oriented Programming	E	BI	3	2	0	6
		E-Government	E	BI	3	2	0	6
		Quality Assurance in IT	E	BI	3	2	0	6
	5	Professional Practice	C	a				2
					15	**10**	**0**	**30**

Semester		Subject	Status	Study program	L	E	OFT	ECTS
8	1	Multimedia and Creative Technologies	C	BI	4	3	0	6
	2	Digital Marketing	C	BI	4	2	0	6
	3	Design of Business Information Systems	C	BI	4	2	0	6
	4	Business Process Management	C	BI	3	3	0	5
	5	Professional Practice	C	a				2
	6	Elective Subject 5: Final Paper	C	a				5
					15	**10**	**0**	**30**

L: Lectures
E: Exercises (auditory)
OFT: Other Forms of Teaching (laboratory exercises, seminars, study research work, etc.).

MODULES:

a. Common subjects in the first two academic years of the study programs *Economics and Business Management* and *Business Informatics*

BI - Subjects of the study program *Business Informatics*

11. CRITERIA AND CONDITIONS FOR TRANSFER OF ECTS POINTS

Conditions for transfer of ECTS points from one study program to another within the University of Banja Luka as well as between the University of Banja Luka and other universities are defined by the Rules of Study in the I and II cycle studies at the University of Banja Luka, Article 39.

12. PROOF OF CONFORMITY

Study program *Business Informatics* offers students current scientific or expert knowledge in the field of theoretical and applied economics and management.

Study program is in its essence aligned with other accredited programs of foreign universities in the framework of the European educational space. Study programs that best suit the proposed structure of the study program subject are realized at the following institutions:

1. University of Belgrade, Faculty of Organizational Sciences, study program Information Systems and Technologies, http://www.fon.bg.ac.rs/studije/osnovne-akademske-studije/informacioni-sistemi-i-tehnologije/
2. University of Novi Sad, Faculty of Economics Subotica, study program Business Informatics http://posinf.ef.uns.ac.rs/
3. University of Zagreb, Faculty of Economics, study program Business Economics - module Business Informatics, http://www.efzg.unizg.hr/default.aspx?id=11015

University of Zagreb, Faculty of Organization and Informatics Varaždin, study program Information and Business Systems, https://www.foi.unizg.hr/studiji/pds/ips

University of Ljubljana, Faculty of Economics, study program Business Informatics, http://www.ef.uni-lj.si/podiplomsko/poslovna_informatika

13. PREREQUISITES FOR THE ENROLLMENT IN CERTAIN SUBJECTS

Information on the prerequisites for the enrollment in certain subjects or group of subjects can be found in Appendix 7.2, i.e. in the syllabi for the subjects.

14. WAY OF SELECTION OF SUBJECTS FROM OTHER STUDY PROGRAMS

There is no overlapping of subjects between study programs. One subject that is on the list of elective subjects in both study programs will be selected among other subjects by the survey. Criteria and method of selection of elective subjects are described in detail in Chapter 7 of this Study: The list of compulsory and elective subjects.

15. CRITERIA AND QUALITY ASSURANCE

From 2008, regular annual evaluation of the teaching process by interviewing students is performed at the University of Banja Luka. Among other things, the evaluation contains many indicators of the quality of the study program. Besides that, the analysis of the passing rate and success for each subject are performed, and the progress of students during their studies is monitored. Drafting of the quality strategy that will work out other forms of evaluation as well as of the procedures for eliminating gaps and improving the quality of study programs is currently ongoing. Faculty of Economics, University of Banja Luka adopted the self-evaluation report in 2017, as well as the EFQM Self-evaluation Report 2012, as part of the CUBRICK TEMPUS project. At the beginning of the calendar year the Scientific-Educational Council adopts the report on the work in the previous year and plan for the coming year. In order to constantly improve the quality system, the Committee for Quality Assurance of the Faculty of Economics, University of Banja Luka and the Office for International Cooperation have been established.

Faculty of Economics, University of Banja Luka, periodically, in cooperation with the Office for Quality Assurance of the University of Banja Luka and the Students' Union of the Faculty of Economics,

University of Banja Luka, conducts evaluation of the teaching process and teaching staff, and conducts various surveys of students and staff, including the surveys through the website of the Faculty of Economics, University of Banja Luka.

The University of Banja Luka has adopted a number of documents aimed at ensuring and improving quality. Those are:

1) Development Strategy of the University of Banja Luka for the period 2017-2025 (http://unibl.org/uploads/files/strane/zakoni_i_interni_propisi/Strategija_UNIBL_2017-2025.pdf).
2) Rulebook on content, appearance and digital repository of master/magister theses at the University of Banja Luka (http://unibl.org/uploads/files/strane/pravilnici/2017/Pravilnik-digitalni-repozitorijum.pdf).
3) Rulebook on the procedure for verifying the originality of final papers of students at the II and III cycle studies at the University of Banja Luka (http://unibl.org/uploads/files/strane/pravilnici/2017/Pravilnik-originalnost-radova.pdf).
4) Rulebook on student surveys on the quality of the teaching process (http://unibl.org/uploads/files/strane/pravilnici/2017/Pravilnik-originalnost-radova.pdf).

Ensuring the quality of the study program is carried out within:

1) the process of data analysis of attractiveness of existing study programs;
2) the process of revision of existing study programs;
3) the process of development of new study programs;
4) the process of introduction of a new subject;
5) the process of analysis of the successfulness of the completion of studies;
6) the process of data analysis of employment after graduation;
7) the process of surveys of graduates;
8) the process of surveys of employers, professional bodies and associations.

Ensuring and improving the quality of teaching process is achieved through:

- defining the rules and criteria for grading of students;
- procedure upon the student's grade appeal;
- analysis of exam performance;
- data analysis of the number of students who enrolled in the next academic year;
- data analysis of the number of students and teachers;
- students' evaluations of classes and teachers;
- self-evaluation of teachers;
- defining the structure of the course, learning outcomes, student workload, content and plan of classes per weeks, method of education, students' obligation and ways to verify the acquired knowledge and skills – compliance with the qualification framework.

Ensuring quality resources to support students is conducted through:

1) process of continuous improvement and increase of resources to support the study;
2) evaluation of the work of Student Services;
3) procurement of mandatory literature in all subjects in which the classes are held;
4) subscribing to the scientific basis with the full text in the area of economics and study programs;
5) subscribing to reference scientific journals.

Ways of analysis of the performance of the quality assurance system are implemented through:

- the process of making the self-evaluation reports;
- system of external evaluation of the quality of study programs and the Faculty of Economics, University of Banja Luka, as an institution;
- internal evaluation of the quality assurance system.

Ensuring the quality of scientific research activities of the teaching staff is carried out through:

1) adopting the strategy of scientific research;
2) creating a positive environment for research and enhancing the scientific profile of the institution;
3) cooperation with other institutions and industry in order to promote scientific research and educational activities;
4) valuating the quality of the scientific research activity.

16. CONDITIONS FOR TRANSFER FROM OTHER STUDY PROGRAMS

According to the Rules of Study in the I and II cycle studies at the University of Banja Luka (Article 39), the conditions for transfer from one study program to another are determined by the University Senate, on the proposal of the Council of the Faculty/Academy.

More precise conditions for transfer from other study programs within the same or related studies will be defined in the Rulebook on the Harmonization of Curricula that will be adopted by the Scientific-Educational Council of the Faculty of Economics, University of Banja Luka, before the start of the academic year 2018/2019.

17. STUDENTS' OBLIGATIONS AND DYNAMICS OF STUDYING

Students' obligations and dynamics of studying are defined by the Law on Higher Education, the Statute and the Rules of Study of the University of Banja Luka.

18. APPENDIX – 7.2. CONTENTS OF THE CURRICULUM OF THE FIRST CYCLE STUDIES – SYLLABI

The first year of study

Subject name	Winter semester		Summer semester		ECTS
	L	E	L	E	
Basics of Economics	4	2			8
Enterprise Economics	4	2			8
Business Informatics	3	2			6
Mathematics for Economists	4	4			8
Basics of Statistical Analysis			4	3	8
Methodologies of Software Development			3	2	7
Financial Accounting			4	2	8
Management			4	2	7
TOTAL:	15	10	15	10	60

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Basics of Economics**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	1st	4L + 2E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The goal of the subject is to provide students with basic knowledge about the historical development of economic science, basic principles in economics, basic economic categories, and the essence of the functioning of micro and macroeconomic systems.

Learning outcomes (gained knowledge):

After this course, the students will gain basic knowledge of economic phenomena and processes. They will be able to independently establish and review the causal events on the market and in the economy.

Subject contents:

Political economics as a science. What is economics? Research methods in economics. The economic laws. Three key economic laws. The scope of social production. Social reproduction. Commodity production and the market. Basic elements of supply and demand. Elasticity of supply and demand. Forms of exchange of goods. Money. The modern economic system. Participants in the economic events and their behavior. Production volume and capital turnover. Production costs. Profit, profit rate and capital accumulation. Distribution as a phase of reproduction process. Labor market. Market of the loan capital. Real capital market. Banking system. The market of natural resources. Merchant capital. Share capital. Market structure of the modern capitalism. Economic functions of the country in contemporary economies. Public goods, externalities and public choice. Economic policy of the country in certain areas. Economic growth. Economic crises. International exchange.

Teaching methods and learning activities:

Lectures, use of practical examples and graphical interpretations.

Literature:

Ivanić M. (2010). *Principles of Economics*, Banja Luka: University of Banja Luka, Faculty of Economics;
Additional literature:
Gregory N.M., (2004). *Principles of Economics, 3rd Edition*. Belgrade: Faculty of Economics;
Samuelson P. A.; William, D. N. (1992). *Economics, 14th Edition*. Zagreb: Mate d.o.o.

Types of assessment and grading:

Two colloquiums, seminar papers, homework, class activities and oral exam

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

The subject is taught according to the same program at leading universities in the world.

Name of the professor who provided the information: Mladen Ivanić, PhD, Associate Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Enterprise Economics**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	1st	4L + 2E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The subject enables students to understand the meaning and significance of the enterprise as the basic institution of a market economy, to learn the basic principles of business activities of the enterprises; to learn ways of achieving optimal value of production with the use of scarce resources; to learn the methods of maximizing the enterprise profits; to learn how to present business functions in the enterprise by algebra, graphics and tables and to know how to analyze the behavior of enterprises in the market; to learn the basic principles of doing business, such as productivity, efficiency and profitability and to learn to calculate the cost price of products by using different methods.

Learning outcomes (gained knowledge):

Upon completion of this course students will gain basic knowledge of the facts, principles, processes and general concepts in the enterprise economics. The students will be able to find the optimal solution in the management of enterprises by applying the basic knowledge of economic theory and science in decision-making and will have a basic knowledge for further study of the theory of economics and business management.

Subject contents:

The term 'Enterprise'. Differentiation of enterprises. Enterprise economics. The theory of enterprise. The process of reproduction. Production and production functions. Productivity. Consumptions. Costs and cost functions. Cost price calculation. Models of cost management. Price and pricing. Revenues and revenue functions. Cost-effectiveness and analysis of breakeven point. Profit and profit maximization. Distribution of the results of business operations. Profitability.

Teaching methods and learning activities:

Lectures i.e. systematic transfer of knowledge from the literature. During lectures, some of the topics will be discussed or illustrated with different simulations and programs for graphic solution and analysis of a problem with an active participation of the students. Illustrations and practice. Besides examples which will be discussed, other examples (problem-solving tasks) which illustrate, and practice certain topics will also be discussed (in a group and individually). Illustration and practice imply two-way communication, and students are invited to express their opinions freely about the case for illustration and practice. Discussion of cases from practice. The main form of work will be discussion of cases from practice, which enables students to learn how to use acquired knowledge for practical purpose. Preparation and presentation of a seminar paper with the obligatory application of methodology for preparation of professional papers.

Literature:

Todorović, Z. (2012). *Enterprise Economics*. Banja Luka: University of Banja Luka, Faculty of Economics;
Berberović, Š.; Todorović, Z. (2009). *Enterprise Economics*. Banja Luka: University of Banja Luka, Faculty of Economics;
Salvatore, D. (1989). *Managerial Economics*. Zagreb: Mate d.o.o.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

None

Name of the professor who provided the information: Zdravko Todorović, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Business Informatics**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	1st	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The goal of the subject is to introduce students with contemporary theoretical and practical aspects of business informatics. Students learn about business informatics as a theoretical and practical discipline, as well as the application of information technology in business. In particular, they learn about the problems of individual components of information systems, as well as global computer network Internet and e-business. The goal of this subject is to draw attention to the risks posed by the application of information technology in business, and to emphasize the need of taking care of the security of information systems and protection against misuse of information technology.

Learning outcomes (gained knowledge):

Students gain general knowledge about the application of information technology in business and become familiar with the latest information technologies that are used in business, both from an organizational as well as functional aspect. In addition to that, this subject allows students to learn about software tools, ready-made software solutions and ways to use them in solving economic and business problems.

Subject contents:

Information technology and the modern world. Globalization and the knowledge economy. Strategic use of information technology in the knowledge economy. Information technology as infrastructure in business. Hardware. Software. Data, information, knowledge. Data organization on a computer (files, databases, data warehouse, file database). Ergonomics of jobs requiring personal computers. Organization and management of IT as a business function. Ways of organizing an information system. Computer networks and internet technology. Internet services. Intranet and extranet. Application of information technology in business. Parts of IT system - organizational aspect. Parts of IT system - functional aspect. Integrated information system. Decision making systems (modeling in business decision making, methods of computer modeling, simulation modeling). Expert systems. E-business. Application of the concept of e-business (e-marketing, e-banking, e-commerce, distance learning, mobile business). Risks of application of information technology in business. Misuse of information technology and IT risks. Security of information systems and protection against misuse of information technology. Problems of security in e-business and IT crime. Ethics and information technology.

Teaching methods and learning activities:

Lectures, seminar papers, exercises on computers, students' presentations.

Literature:

Aleksić Marić, V. (2008). *Business Informatics.* Banja Luka: University of Banja Luka, Faculty of Economics.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Passed test on computers is a prerequisite for taking the final exam.

Name of the professor who provided the information: Vesna Aleksić, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Mathematics for Economists**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	1st	4L + 4E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Development of logical reasoning and algorithmic ways of problem solving. Becoming familiar with the basics of linear algebra, differential and integral calculus, financial mathematics and their applications in economics.

Learning outcomes (gained knowledge):

After completing this course, students will be able to independently and effectively follow the mathematical content of all vocational economics subjects, both of the first and the second cycle studies. Accuracy of the mathematical expression will help them to clearly and precisely formulate phenomena and laws of the society, especially in macroeconomic and microeconomic models. They will be able to solve specific problems in the field of mathematics covered by this subject.

Subject contents:

Linear algebra: systems of equations, matrices, determinants. Functions of one variable, derivatives and their application in the examination of economic functions. Functions of several variables, optimization problems. The indefinite and definite integrals and their applications in economics. Differential and difference equations and their applications.

Teaching methods and learning activities:

Lectures, exercises, consultations, demonstrations, preparing seminar papers.

Literature:

Skakić, N., Kravarušić, R. (2006). *Mathematics*. Banja Luka: University of Banja Luka, Faculty of Economics;
Lučić, B. (2006). *Mathematics*. East Sarajevo: Institute for Textbook Publishing and Teaching Aids;
Chiang, A. C. (1994). *Basic methods of mathematical economics.* Zagreb: Mate d.o.o;
Dowling, E. T. (1993). *Mathematical Methods for Business and Economics.* McGraw-Hill.

Types of assessment and grading:

Written and oral

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Milovan Vinčić, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Basics of Statistical Analysis**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	2nd	4L+3E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

To allow students to become familiar with statistical methods and models, and their application in theory and practice.

Learning outcomes (gained knowledge):

After completing this course, students will master the statistical methodology and its application in order to obtain the results, through the various analyzes and research procedures, on the basis of which, further, valid conclusions can be drawn, and appropriate decisions can be made.

Subject contents:

Descriptive analysis. Probability. Theoretical distributions. Sampling and sample distributions. Trust intervals. Statistical hypothesis testing. Analysis of variance. Chi-square-test. Simple linear regression and correlation analysis. Multiple linear regression and correlation analysis. Index numbers. Time series analysis.

Teaching methods and learning activities:

Lectures and exercises, with seminar classes.

Literature:

Lovrić, M.; Komić, J.; Stević, S. (2006). *Statistical analysis - methods and application*. Banja Luka: University of Banja Luka, Faculty of Economics;
Komić, J. (2000). *Methods of statistical analysis through examples: workbook.* Banja Luka: University of Banja Luka, Faculty of Economics.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Jasmin Komić, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Methodologies of Software Development**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	2nd	3L+2E	7
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Understanding the specifics of software development management.

Learning outcomes (gained knowledge):

Possession of knowledge and skills for running IT projects. Ability to understand the various concepts of software systems and the risks involved in their introduction. Knowledge of traditional and modern agile methodologies in software development.

Subject contents:

Subject Contents: Theoretical lectures. Management of the IS development project. Different models of IS development. Analysis of different IS development methodologies. IT Service Management. Standards in the field of software development processes and system documentation. Traditional methodologies. Agile software development methodologies: scrum, kanban, extreme programming. Practical classes: exercises, other forms of teaching, study research work, workshops, choosing the best offer of IS by respecting the standards; Case study - analysis of the business information system and simulation of development decisions; Research of new IS development methods. Research of traditional and agile methodologies.

Teaching methods and learning activities:

Lectures, exercises, case studies.

Literature:

Davies, P. B. (2009). *Business Information Systems*. Palgrave Macmilan.
Dittman, W. B. (2005). *Systems analysis and design methods*. McGraw-Hill.
Laudon, K.C., & Laudon, J.P. (2004), *Management Information systems*. Prentice Hall.
Applegate, A.; McFarlan. (2003). *Corporate Information Strategy and Management*. McGraw-Hill.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Passed test on computers is a prerequisite for taking the final exam.

Name of the professor who provided the information: Vesna Aleksić, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Financial Accounting**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	2nd	4L+3E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Mastering the fundamentals of financial accounting, and in particular understanding of: global bookkeeping procedures, bookkeeping instruments, concepts and essence of bookkeeping and accounting, differences between financial and managerial accounting, double-entry bookkeeping system, accrual basis of accounts, types of accounts, booking rules, principles of proper bookkeeping, accounting principles, basic accounting categories, rules for evaluating the elements of the financial statements, inventories, preliminary and final entries, preparation of the rough balance and the trial balance, contents of basic elements of financial statements, etc.

Learning outcomes (gained knowledge):

During the study of the planned curriculum, students acquire the necessary knowledge and skills for understanding of global bookkeeping procedures and bookkeeping instruments, differences between bookkeeping and accounting, principles of separation between the financial and management accounting, system of double-entry bookkeeping and accrual accounting basis, types of accounts and bookkeeping rules, principles of orderly bookkeeping and basic accounting principles, rules of valuation, basic principles of inventory, closing entries and preparation of the trial balance as the basis for the preparation of basic financial statements, basic principles on which the current legal and professional regulation in this area is based in the Republic of Srpska, etc.

Subject contents:

Bookkeeping and accounting; subject and purpose of bookkeeping; principles of orderly bookkeeping and accounting principles; basic global procedures in the bookkeeping and bookkeeping instruments, bookkeeping accounts: concept, types and rules of making entries into accounts; business (economic) changes; layout of chart of accounts and chart of accounts; property inventory; errors in bookkeeping; establishment of a legal entity and acquiring the initial capital; procurement of fixed and current assets; liabilities: definition, classification, origin and settlement; expenses and costs by nature, principles of income valuation; business, financial, other and revaluation income; methods of balancing financial results; pre-closing and closing entries; basic principles of preparation and presentation of financial statements in accordance with IFRS; basics of the financial statements analysis.

Teaching methods and learning activities:

Current theoretical knowledge in the subject area is transferred to students during lectures by using the presentations in Power Point. Exercises are carried out through performing specific tasks. Preparation and presentation of the seminar paper is done with the mandatory application of the methodology for the preparation of professional papers. Students are regularly encouraged to have an active attitude towards the lectures and exercises, i.e. proactive participation in and mastering of curriculum during lectures and exercises, participation in consultations, as well as independent work.

Literature:

Šnjegota, D. (2010). *Application of IFRS through the balance sheet chart of accounts layout*. Banja Luka: Faculty of Economics and Finrar;
Škarić, Jovanović, K. (2006). *Financial Accounting*. Belgrade: Faculty of Economics;
Gray/Needles. (2006). *Financial accounting – general approach*. Copyright: Houghton Mifflin Company. Banja Luka: The Association of Accountants and Auditors of the Republic of Srpska.

Types of assessment and grading: Written and oral assessment, after previously passing 2 colloquiums.

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

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Name of the professor who provided the information: Duško Šnjegota, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Management**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	2nd	4L+2E	7
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The subject enables students to become familiar with basic management knowledge, functions, methods and ways of work and their application in solving business problems in modern enterprises and in complex conditions; to master the concepts for management analysis and performance of managerial jobs at different organizational levels and in different enterprises; to learn the basic form of business plan development; to become familiar with the managerial work, the basic concepts, methods, skills and knowledge required for effective functioning and development of management in modern conditions.

Learning outcomes (gained knowledge):

Upon the successful completion of this course the students will acquire the basic knowledge about theory, principles and practice of management; master the basic functions of management; be introduced to the theory and practice that are commonly used in the context of management; learn basic forms for the development of business plan and master concepts for the analysis of management and perform managerial jobs at different organizational levels and in different enterprises.

Subject contents:

Definition, significance and principles of management; the concept, importance and role of management; management development; activities, classifications of managers, top managers, concept and development of management as a practice; scientific management; management of small, medium and large enterprises; management and cultural environment; enterprise environment; ethics and social responsibility; planning as a function of management; strategy and strategic planning; organization as a function of management, delegation, decentralization, the process of organization design, employment or human resource management; internal and external recruitment, influence with sub-functions of leadership; communications and motivation; controlling; creating a business plan; institutional aspects of management; corporate governance; new concepts and approaches to management.

Teaching methods and learning activities:

Lectures, seminar classes, exercises, writing papers and solving of business cases (group and individual work).

Literature:

Lukić, Z.; Babić, M. (2009). *Management: theories, functions, institutional aspects and corporate governance.* Banja Luka: University of Banja Luka, Faculty of Economics;
Mašić, B.; Lončarević R.; Đorđević-Boljanović J. (2007). *Management: principles, concepts and processes.* Belgrade: Singidunum University.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Zoran Lukić, PhD, Associate Professor

The second year of study

Subject name	Winter semester		Summer semester		ECTS
	L	E	L	E	
Microeconomics	4	3			8
Monetary and Public Finance	4	2			8
Introduction to Programming	4	3			8
Elective Subject 1	3	2			6
Macroeconomics			4	3	8
International Economic Relations			4	2	7
Financial Management			4	2	8
Financial Mathematics			4	2	7
TOTAL:	15	10	16	9	60

Elective subjects in the second year:

1. Business Intelligence Systems,

Knowledge Management Systems,
Organization of Business Systems,

Note on the selection of elective subjects:

- the minimum number of students for the elective subject in the second year of study is fifty. If students choose in the survey two or more elective subjects with a minimum of fifty candidates per subject, the lectures will be carried out in parallel in all subjects chosen by the allowed minimum number of students.

Note on subject prerequisites:

2. Prerequisite for the subject Microeconomics is the passed exam in the subject Basics of Economics from the first year of study.
3. Prerequisite for the subject International Economic Relations is the passed exam in the subject Basics of Economics from the first year of study.
4. Prerequisite for the subject Financial Mathematics is the passed exam in the subject Mathematics for Economists from the first year of study.

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Microeconomics**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	3rd	4L + 3E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
Basics of Economics	Passed exam

Subject goals:

Familiarizing the students with the nature of motivation that determines the behavior of market participants and laws of market functioning that are set up by this behavior. Meaning of such studies is that students master the basics of economic logic, to understand the role of economic motivation, economic goals, competition, freedom of economic decision-making in conditions of uncertainty and the basics of taking economic risks. Mastering the tools of microeconomic analysis should enable that the logic of economic behavior is transferred to measuring the economic phenomena, establishing prices and measures of feasibility of economic objectives, and reducing the risk of economic decisions.

Learning outcomes (gained knowledge):

Establishing own logical system of economic decision-making; knowledge of the manner, nature and patterns of behavior of economic subjects; mastering methods of microeconomic analysis; ability to identify different types of behavior of market participants; ability to measure efficiency in the realization of economic goals; ability to measure the impact of market changes on the behavior of market participants; ability to identify market morphology; ability to analyze the behavior of market structures; ability to create economic policy measures with the influence on behavior of market participants; ability to measure the effects of economic policies on the behavior of market participants.

Subject contents:

Basic principles and tools of microeconomic analysis; market; budget constraints; preferences; utility; customer choice; customer demand; revealed preference; effects of substitution and income; purchase and sales; intertemporal choice; property market; uncertainty; risky assets; the consumer's and the manufacturer's surplus; market demand; market equilibrium; the theory of production and selection of technologies; maximizing the profits; minimizing the costs; the cost function; offer of companies and industries; full competition; monopoly; oligopoly; cartel; monopsony; monopolistic competition; the market of production factors; game theory; welfare theory; externalities; public goods; asymmetric information.

Teaching methods and learning activities:

Lectures, seminar papers and exercises. All forms of teaching include simulations of actual economic situation, the application of appropriate methods of analysis, discussing solutions and proposing measures to achieve the optimum. All stages of the teaching process envisage the active involvement of students. Independent students' work is based on case studies that analyze and interpret the mastered methods of analysis.

Literature:

Varijan, H. (2012). *Microeconomics, modern approach*. Belgrade: Faculty of Economics;
Tomaš, R. (2011). *Applied Microeconomics, second, revised and updated edition.* Banja Luka: University of Banja Luka, Faculty of Economics.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

The subject is taught according to the same program at leading universities in the world.

Name of the professor who provided the information: Rajko Tomaš, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Monetary and Public Finance**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	3rd	4L+2E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**

Subject goals:

The main goal of this subject is to familiarize students with contemporary theoretical and applied aspects of monetary and public finance in order to enable them to participate, as economists, in analyzing and solving practical problems in these areas. These are two separate but closely related scientific disciplines, which are an integral part of the finance as a broad scientific field. Monetary Finance, as a scientific discipline, studies the monetary system and monetary policy and it needs to provide students with basic knowledge and overview of achievements in this field. Public Finance needs to familiarize students with and enable them to master the numerous and complex issues and problems of the public finance system.

Learning outcomes (gained knowledge):

Upon completion of this course a student will gain basic knowledge about the objectives, basic institutions and instruments of fiscal and monetary policies, and principles and ways of functioning of the public sector. The student will be able to find the optimal solutions in the conduct of monetary and fiscal policy in the country through the application of fundamental knowledge of economic theory and policy and will also be able to use the gained knowledge in the further study of these areas.

Subject contents:

Introduction to monetary economics. Currency or money. Monetary instability. Monetary system. Monetary policy. Monetary aggregates. Monetary regulation. Introduction to public finance. Public expenditure. Public incomes. Budget. Public loan. Fiscal decentralization.

Teaching methods and learning activities:

Lectures, i.e. systematic transfer of knowledge from the literature. During the classes, some of the topics will be discussed or illustrated by various simulations and programs for solving and analyzing of problems in which the students will play an active role. Illustrations and exercises imply two-way communication, and students are encouraged to freely express their views about the case studies for illustration and exercise. Discussion of cases studies – involves the processing of case studies in order to train the students to use the acquired knowledge for practical purposes. Independent students' seminar papers with the mandatory application of the Instructions for the preparation of scientific papers.

Literature:

Dušanić, J.; Špirić, N. (2009). *Money*. Banja Luka: University of Banja Luka, Faculty of Economics;
Ćirović, M. (1987). *Monetary Economy*. Belgrade: European Centre for Peace and Development.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Nikola Špirić, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Introduction to Programming**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	3rd	4L + 3E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Familiarization with key concepts of programming, software development and software engineering. Understanding the principles, rules and methods of programming and software development, as well as basic algorithmic structures and data structures. Coding and testing: practical use of an imperative programming language. Use of software tools and application of basic software metrics.

Learning outcomes (gained knowledge):

Ability of students to develop software using the method of functional decomposition and structural programming in a non-objective imperative language.

Subject contents:

Theoretical classes: L01: Programming: concept, general model, language, process. L02: Fundamentals of computer organization and programming using lower programming languages. L03: Higher programming languages and software paradigms; basics of programming language (alphabet, identifiers, types, literals, expressions, operators, commands). L04: Subprograms; structures, unions and fields; declarations. L05: Indicators and dynamic memory management. L06: Construction of structural algorithms. L07: Construction of Data Structures. L08: Program idioms. L09: Program idioms /continuation/ L10: Linear data structures. L11: Linear Data Structures /continuation/ L12: Software Development using algorithmic abstractions and data abstractions. L13: Basics of Software Engineering. Practical classes: E01: Program (software) tools. E02: Lower programming languages: examples. E03: Identifiers, types, literals, expressions, operators, commands. E04: Arrays; pre-processor directives. E05: I/O: flows and files. E06: Programming Techniques. E07: Programming Techniques /continuation/ E08: Programming Idioms. E09: Programming idiom /continuation/ E10: Linear data structures. W11: Linear Data Structures /continuation/ E12: Synthesis: Study Example. E13: Basics of Software Engineering.

Teaching methods and learning activities:

Lectures, seminar classes and practical exercises on the computer.

Literature:

Knuth, D.E. (1973). *The Art of Computer Programming*. Vol. I, II; Addison-Wesley.
Dahl, O.J., Dijkstra, E.W., & Hoare, C.A.R. (2003). *Structured Programming.* Academic Press.
Wirth, N. (1972). *Algorithms + Data Structures = Programs*. Prentice-Hall, Englewood Cliffs.
Ivetić, D. (2005). *Structured approach to programming.* Novi Sad: FTN Publishing, Novi Sad.
Kernighan, B.W., & D.M. Ritchie. (2003). *Programming Language C, 2nd Edition*. Belgrade: CET, Belgrade.
Tondo, C.L.; & Gimpel, S.E. (2004). *Programming Language C - solutions to problems, 2nd edition.* Belgrade: CET, Belgrade.
Hansen, A. (1991). *Programming in the C Language - a complete guide.* Belgrade: Mikro knjiga, Belgrade.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Macroeconomics**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	4th	4L+3E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Macroeconomics is an "alphabet" of the economy. It examines the basic economic laws, the way in which economy functions, basic economic policies and their impact on the achievement of the basic macroeconomic goals. The goal of this subject is to familiarize students with the very demanding and complex subject matter.

Learning outcomes (gained knowledge):

Macroeconomics is a very complex field of theory, science and practice. The main outcome of studying this scientific discipline is that students, after mastering this very demanding and complex subject matter, can easily and quickly understand the comprehensive analysis of modern macroeconomic issues and problems, whose importance is greater today than ever before. Students acquire detailed knowledge of basic economic laws, the way in which economy functions, basic economic policies and their impact on the achievement of the basic macroeconomic goals.

Subject contents:

Introduction to macroeconomics. The macroeconomic balance sheets. The basics of economic growth. The labor market and unemployment. Intertemporal budget constraint. Consumption and investment. The real exchange rates. Money and demand for money. Equilibrium in the money market in the short and in the long run. The money supply and monetary policy. Objectives, targets and instruments of monetary policy. Output, employment and prices. Goods Market and the IS curve. Money Market and the LM curve. Taylor rule and the TR curve. Macroeconomic equilibrium with fixed and flexible prices. Aggregate demand and aggregate supply. Output and interest rate at fixed and flexible exchange rate. Aggregate demand and inflation. Aggregate demand and aggregate supply in a fixed and flexible exchange rate regime. The shocks of supply and demand. Business cycles. Fiscal policy. Demand management policies. The Economics of Demand. Financial markets and macroeconomics. The determinants of the exchange rate in the short term. The construction of the international monetary system. Foreign currency crisis. The selection of exchange rate regime.

Teaching methods and learning activities:

Lectures, seminar classes and practical exercises.

Literature:

Burda, M.; Wiplosz, C. (2012). *Macroeconomics.* Belgrade: Faculty of Economics (translation from English).

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Stevo Pucar, PhD, Associate Professor and Srđan Amidžić, PhD, Associate Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**International Economic Relations**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	4th	4L+2E	7
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
Basics of Economics	Passed exam

Subject goals:

The subject International Economic Relations is an introduction to International Economics, based on studying classical concepts and modern trends of international economic relations. The goal is to familiarize students with the real international flows (international trade) and international financial flows.
Mastering the content of this subject is a prerequisite for a range of vocational subjects, especially in the Department of International Economics and subjects at higher levels of study in this field.

Learning outcomes (gained knowledge):

Upon successful completion of this subject the student will be able to:
- describe the concept of international economic relations and modern trends in international economic relations,
- indicate and explain the classical and neoclassical theories of international trade,
- classify the instruments of trade policy and examine the importance and role of international trade institutions,
- explain the concept of the balance of payments and the types of transactions in the balance of payments,
- sum up the importance of exchange rates and their impact on economic trends,
- examine the importance of international financing, explain the concept of the debt crisis and the international movement of capital,
- examine the importance and role of international financial institutions.

Subject contents:

International trade: classical and neoclassical theories of international trade, protectionism in international trade; impact of international trade on national income and interdependence of these values; microeconomic analysis of pricing in international trade; trade relations and elasticity in international trade; theory and policy of trade policy instruments: tariffs and non-tariff barriers; role of transnational corporations and globalization; Rules in international trade: institutionalization (role of the GATT and the WTO). International Finance: balance of payments; concept, types and balance of payments imbalances, balancing the balance of payments; the equilibrium theory of the balance of payments; exchange rate, term, type and effects of exchange rates, exchange rates formation theory; foreign currency markets; international capital movement, forms and effects; Euro-currency market; international debts – causes, indicators, and possibilities of overcoming the debt crises; international financial institutions; International Monetary Fund; The World Bank and its affiliates. Regional integration: forms of regional integration, the European Union – development, effects of integration.

Teaching methods and learning activities:

Lectures, consultations, individual students' papers and presentations, and workshops.

Literature:

Čenić-Jotanović G. (2010). *International Economics*. Laktaši: Grafomark;
Krugman, P.; Obstfeld, M. (2009). *International Economics, Theory and Policy*. Belgrade: Datastatus;
Salvatore, D. (2009). *International Economics*. Belgrade: Centre for Publishing.

Types of assessment and grading:

Continuous evaluation of knowledge: testing, presentations of seminar papers and oral exam.

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Gordana Čenić-Jotanović, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	

	Academic undergraduate studies – I Cycle	
	Study program(s):	**Business Informatics**

Subject name	**Financial Management**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	4th	4L+2E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
Basics of Accounting	Non-compulsory

Subject goals:

Familiarizing students with the basic rules and principles of financial management, management of companies' finance and functioning of financial markets. The result of improved knowledge in this field is the ability to objectively identify, analyze and solve typical problems that financial managers of companies encounter in the business. Students acquire knowledge about the role of financial managers in the field of finance, investment and management of companies' finance, and they master the basics of financial logic, financial methods and techniques selected in accordance with the demand of labor market for staff of this profile.

Learning outcomes (gained knowledge):

Systematic mastering of specific knowledge of financial management and capacity for its implementation. Adopting the conceptual and abstract thinking as the basis of creative approach to the companies' finance. Mastering the basic skills of autonomous and team work in the field of financial management as a precondition for participation in solving specific tasks in the field of finance. Upon completion of studying this course, students should gain the essential knowledge, understanding and ability to demonstrate the importance and role of finance in the enterprise, as well as the skill of using the basic methods and techniques of financial management.

Subject contents:

Enterprise business functions and tasks of business functions; Tax environment; Financial policy and financing rules. Money market and capital market. Stock market and currency market. Corporate finance, joint ventures, loans and specific forms of financing. Making decisions about financing. Analysis of income, property and financial status of companies. Solvency rating of enterprises. Financial planning, business and financial risk. The time dimension of money. The notion and quantification of investment, financial evaluation and evaluation of project liquidity. Analysis of uncertainty. Financial management of permanent and long-term capital and fixed assets. Managing short-term liabilities and working capital. Managing dividend.

Teaching methods and learning activities:

Forms of teaching are lectures, exercises, and independent seminar papers under the supervision of a teacher and teaching assistant, regular consultations and e-consultations, discussions of case studies. Clearly structured lessons, with significant joint work and communication, give advantage to teaching methods. By applying the portfolio method as an intellectual unification of teaching and learning, continuous improvement of teaching process is achieved, and it provides optimal quality of teaching and learning process.

Literature:

Mikerević, D. (2011). *Financial Management*. Banja Luka: University of Banja Luka, Faculty of Economics and Finrar; Van Horne J. C.; Wachowicz J. M. Jr. (2002). *Fundamentals of Financial Management*. Zagreb: Mate.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Knowledge of basic accounting categories is an informal condition for the successful completion of the subject.

Name of the professor who provided the information: Dragan Mikerević, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Financial Mathematics**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	4th	4L + 2E	7
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
Mathematics for Economists	Passed exam

Subject goals:

The main objective of this subject is to transfer knowledge to students in relation to the time value of money calculations of simple and compound interests. As part of the teaching process, students will learn about the elements of the final and initial values of the individual amounts of money, calculation of periodic deposits, calculation of periodic withdrawals, amortization and conversion of the loan, elements of the theory of the loan rate and life insurance models based on single and recurring premiums.

Learning outcomes (gained knowledge):

After mastering the above calculations, future graduate economists will have a theoretical basis for solving similar problems in practice: in banks, corporations, insurance companies and other financial institutions.

Subject contents:

Chain and percentage calculation. Calculation of separation and mixing. Calculation of the interest. Lombard and current account. Calculation of consumer loans. Discounting bills of exchange. Domestic currencies and foreign currencies. Introduction to compound interest. Calculation of the final and initial values of capital. Factor of additional roles. Actualization factor. Amortization of loans in decursive calculation of interest. Repayment law. Repaid part of the debt. Amortization of loan with fixed and variable payments. The concept of annuity. Amortization of loan with fixed and variable annuities. Conversion of the loan. Rate and profitability of the loan. Loans divided into securities. Amortization of loan in inflation conditions.

Teaching methods and learning activities:

Lectures i.e. transfer of systematic knowledge from the literature. In addition to examples that will be discussed, the classes will also cover the examples (solving problem tasks) that will be used to illustrate and practice specific topics. Preparation and presentation of the seminar paper will be done with the mandatory application of the Instructions for the preparation of scientific papers.

Literature:

Krčmar, M. (2007). *Financial Mathematics and Methods of Investment Decision Making*. Sarajevo: Kemigrafika;
Kočović, J.; Pavlović, M. (2010). *Introduction to Financial Mathematics*. Belgrade: Faculty of Economics, Publishing Center;
Kočović, J.; Rakonjac Antić, T. (2013). *Workbook of solved problems from financial and actuarial mathematics*. Belgrade: Faculty of Economics, Publishing Center.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Nikolina Bošnjak, PhD, Assistant Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Business Intelligence Systems**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	3rd	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Familiarizing students with concepts of business intelligence. The subject should present the students with a range of tools and techniques for business intelligence. The students need to acquire practical knowledge and skills that will enable them to efficiently use the business data with the goal of making quality business decisions.

Learning outcomes (gained knowledge):

Enabling students to learn to make timely decisions in the conditions when it is necessary to analyze a large amount of data, when the decision-making time is limited and when it is necessary to make the right decision.

Subject contents:

Theoretical classes L-01: Decision support systems and business intelligence. L-02: Modeling of decision-making and support to decision-making. L-03: Basics of business intelligence. L-04: Data storage. L-05: Business analytics and data visualization. L-06: Data, text and web mining. L-07: Neural networks in data mining. L-08: Managing enterprise performances. L-09: Group and collaborative systems to support decision-making. L-10: Knowledge management. L-11: Expert systems. L-12: Intelligent systems to support decision-making. L-13: Integration and the future of support to decision-making. L-14: Case study of the business intelligence system 1. L-15: Case study of the business intelligence system 2. Practical classes: Exercises, other forms of classes, study research L-01: SPO. L-02: Support to decision-making. L-03: Introduction to business intelligence. L-04: OLAP cubes. L-05: Analytics and visualization. L-06: Data Mining. L-07: Neural networks. E-08: Key performance indicators. L-09: GSPO. L-10: Knowledge management. L-11: Expert systems. L-12: Intelligent SPO. L-13: Hybrid systems. L-14: Case study 1. L-15: Case study 2.

Teaching methods and learning activities:

Lectures, seminar classes and practical exercises.

Literature:

Turban, E., Aronson, EJ., Liang, TP. & Sharda, R. (2007). *Decision Support and Business Intelligence Systems* (8th Edition).
Suknović, M., & Delibašić, V. (2010). *Business intelligence and decision support systems*. Belgrade: FON. Belgrade.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Knowledge Management Systems**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	3rd	3L + 2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

To enable students to understand the role of knowledge management in the development of IS, as well as to use methods for improving the knowledge of business processes.

Learning outcomes (gained knowledge):

Having knowledge about needs and rules of IS for knowledge management, as well as knowledge of the concepts of their construction. Ability to understand different concepts of IS knowledge management systems, ready-made software systems and their introduction.

Subject contents:

Theoretical classes. Introduction: The concept of knowledge management (KM). Knowledge management process as a business activity of the company. Role of KM. Historical overview of KM. Knowledge management as a science discipline. Cognitive science. Expert systems, artificial intelligence and basic knowledge management systems (BKMS). Collaborative work that is computer-supported. Libraries and information science, document management, simulation, Semantic networks, etc. Categorization of the knowledge management approach. Information management. Categorization of knowledge management IS: mechanistic approach, cultural/behavioral approach and systemic approach to knowledge management. Needs for KM. Rules of KM. Ready-made software packages for knowledge management. Practical classes: Exercises, other forms of classes, study research. Workshop. Use of a ready-made software packages for knowledge management; Case study - analysis of knowledge management IS; Research of new development methods of IS for knowledge management.

Teaching methods and learning activities:

Lectures, seminar classes and practical exercises.

Literature:

Tiwana, A. (2002). *Knowledge Management Toolkit, The: Practical Techniques for Building a Knowledge Management System*. Prentice Hall

Holsapple, C. W. (2004). *Handbook on Knowledge Management*. Springer, ISBN: 978-3-540-20019-2

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Organization of Business Systems**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	3rd	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The subject enables students to: become familiar with the fundamentals of the science of organization, the way of establishing and forming an organization, methods and ways of designing the organizational structure and restructuring of business systems, and their applications in solving problems in business in modern enterprises and complex conditions; master the techniques of transformation of business systems at all organizational levels and in different enterprises; learn the essence of designing the organizational structure and restructuring business systems; gain the basic knowledge of organizational behavior; master the way of organizing all functions in business systems, with a special emphasis on executive functions.

Learning outcomes (gained knowledge):

Upon successful completion of the course, students will acquire basic knowledge about the theory, principles and practice of the organization, master the basic notions of organizational structures and their design, as well as the design of organization, they will be introduced to the theory and practice of organizational behavior as the basis of modern organization and management, they will learn basic elements of institutional framework of business systems with a special focus on large business systems, they will acquire the necessary knowledge about organizing and functioning of all functions in enterprises.

Subject contents:

Definition, importance and principles of the organization, understanding of the organization, characteristics of the organization, purposefulness of the organization, concept of the system, organizational structures, formal and non-formal organizations, elements and principles of the organization, types and characteristics of formal organizational structures, factors of the organizational structure, institutional forms of organizing enterprises in a market economy, organization of large business systems, profit decentralization of large business systems, methodology of organization design, organizational behavior, motivation, modern corporate system of awarding top managers, organization of work of assets and functions, models and forms of company restructuring.

Teaching methods and learning activities:

Lectures, seminar classes, exercises, writing papers and solving of business cases (group and individual work).

Literature:

Lukić, Z., & Babić, M. (2009). *Management: Theories, Functions, Institutional Aspects and Corporate Governance*. Banja Luka: University of Banja Luka, Faculty of Economics.
Buble M. (2006). *Methodology of organization design*. Zagreb: Sinergija.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Zoran Lukić, PhD, Associate Professor

The third year of study

Subject name	Winter semester		Summer semester		ECTS
	L	E	L	E	
Economic-Mathematical Models and Methods	4	4			8
Marketing	4	2			7
Integrated Business Software Solutions	4	2			7
Elective Subject 2: Advanced Foreign Language for Economists	3	2			6
Professional Practice					2
Human Resources Management			4	3	8
Databases			4	3	7
Entrepreneurship and Innovations			4	2	7
Elective Subject 3			3	2	6
Professional Practice					2
TOTAL:	15	10	15	10	60

Elective subjects in the third year:

1. Advanced Foreign Language (English, German or Russian) for Economists,
2. Customer Relationship Management (CRM) Systems,
3. Software Engineering,
4. Web Programming.

Note on the selection of elective subjects:

- the minimum number of students for the elective subject in the third year of study is twenty. If students choose in the survey two or more elective subjects with a minimum of twenty candidates per subject, the lectures will be carried out in parallel in all subjects chosen by the allowed minimum number of students.

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Marketing**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	5th	4L+3E	7
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The goal of studying this subject is that students learn the basic principles of marketing as a scientific discipline, its concept, system, and marketing functions and to learn the techniques of marketing research and understand the importance of company's performance in the market. Students become familiar with the features and specificities of the use of instruments of marketing mix on the market (marketing programs in various fields).

Learning outcomes (gained knowledge):

Upon successful completion of this subject a student will be able to:

- describe the concept of marketing and differentiate between marketing concept, system and functions,
- describe the concepts of market and consumers (buyer, demand) from the marketing aspect,
- explain the factors of marketing environment,
- indicate and explain the procedures of market research,
- classify the criteria and assumptions for market segmentation,
- explain the basic elements of managing the marketing program on the market,
- explain the elements (instruments) of marketing mix,
- define the application of the concept of the marketing mix in the field of production (industry, agriculture ...), services (trade, financial institutions, tourism ...).

Subject contents:

The concept and basic characteristics of marketing, concept, system and functions of marketing, market and consumer (customer) in marketing, marketing environment, aspects of market research, market segmentation, instruments (elements) of marketing mix (product, price, distribution, promotion), defining marketing program (selection of strategy), managing of marketing program (organization, personnel, finance), specificities of the application of the marketing concept in the field of production (industry, agriculture, construction ...), services (trade, financial institutions, tourism, shipping and transport, media, sport ...).

Teaching methods and learning activities:

Lectures, exercises, seminar classes which include the preparation and presentation of papers, group presentations and discussions on the given topic.

Literature:

Macura, P. (2009). *Marketing – basics*. Banja Luka: University of Banja Luka, Faculty of Economics;
Kotler, Ph. (2008). *Marketing Management*. Zagreb: Mate, (Belgrade, Data status);
Kotler, Ph. (2008). *Principles of Marketing*. Zagreb: Mate.

Types of assessment and grading:

Continuous evaluation of knowledge through testing and presentations of seminar papers and oral exam.

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Perica Macura, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Economic-Mathematical Models and Methods**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	5th	4L+4E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**

Subject goals:

To familiarize students with the applications of optimization methods for decision-making processes in various areas, e.g. determining the optimal structure of the national economy, foreign trade optimization, optimization of the production program, management of large infrastructure projects, evaluation of investment feasibility, decision-making in conditions of uncertainty or incomplete information, solving optimization problems of large dimensions, etc.

Learning outcomes (gained knowledge):

This subject covers a broad area of application of optimization methods and different approaches to optimization. With the knowledge gained in this subject, students will be able to review the role and importance of optimization for the decision-making process and the benefits that can be achieved with its application. They will also be able to independently apply the methods and techniques of optimization.

Subject contents:

Mathematical expression of economic phenomena and processes; Introduction to linear programming; Simplex method – graphical method; Simplex method – simplex table; Matrix procedure of the simplex method; Transport models and methods; Models and methods of distribution; Integer linear programming; Fractional linear programming; Game theory; Intersectoral models; Network programming; Inventory models.

Teaching methods and learning activities:

In addition to traditional forms of teaching, the emphasis is put on solving case studies and using modern software tools.

Literature:

Petrić, J. (1979). *Nonlinear programming*. Belgrade: Faculty of Organizational Sciences;
Stanić, S., Račić, Ž. (2005). *Mathematical analysis of economic problems*. Banja Luka: Faculty of Economics;
Stanić, S., Račić, Ž. (2004). *Mathematical economics*. Banja Luka: Faculty of Economics;
Stanojević, R. (1966). *Linear programming*. Belgrade: Research Institute of Industrial Economics;
Stanojević, R. (1996). *Application of the simplex method*. Belgrade: University "Braća Karić";
Stanojević, R. (1998). *Intersectoral models*. Belgrade: Faculty of Economics;
Stanojević, R. (2004). *Integer Linear Programming*. Banja Luka. Faculty of Economics;
Tourki, M., Backović, M. (2009). *Mathematical models and methods in economics*. Belgrade: Faculty of Economics.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Stanko Stanić, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Integrated Business Software Solutions**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	5th	4L+2E	7
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Examining the characteristics of ready-made integrated software systems, ways of their selection and specific problems of their introduction.

Learning outcomes (gained knowledge):

Students will be introduced to the characteristics and types of available software solutions, their specificities and suitability for their introduction into certain types of companies.

Subject contents:

Theoretical classes: Introduction: History. Develop or buy a software solution. EAS, ERP and CRM systems. Software systems for enterprise resource planning: From passive control and inventory management through integrated production management systems to integrated management systems for all enterprise resources. Typical logic architecture. Functional areas and program systems (modules). Development environments. Overview of the main characteristics of the most important global solutions: SAP, Navision, Oracle Financial and others. Overview of the main characteristics of domestic solutions. How to choose an ERP system: Defining the selection criteria. Local and global solutions. Evaluation process. Implementation of the ERP system: Critical factors for the implementation of the ERP system. Localization (problems of language and national laws). Customization in accordance with internal standards and business rules of the company. Integrated software solutions for SMEs. Practical classes: Introduction: History. Develop or buy a software solution. EAS, ERP and CRM systems. Defining seminar papers. Typical logic architecture. Functional areas and program systems (modules). Development environments. The most important global solutions: SAP, Navision, Oracle Financial and others. Examples. Work on seminar papers. Overview of the main characteristics of domestic solutions. Domestic solutions. Examples. Work on seminar papers. Integrated software solutions for SMEs. Work on seminar papers.

Teaching methods and learning activities:

Lectures, seminar classes and practical exercises.

Literature:

Bret J.W.; Ellen M. (2008). *Concepts in Enterprise Resource Planning*. Course Technology

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Human Resources Management**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	6th	4L+2E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

To familiarize students with the theoretical foundations of Human Resources Management (HRM) necessary for understanding and directing people to create conditions for the realization of strategic goals of a company. It is necessary for students to become familiarized with modern concepts, goals and objectives of HRM and to master management methods and techniques that promote organizational effectiveness and motivation of individuals. To develop students' ability to effectively manage people at work.

Learning outcomes (gained knowledge):

Understanding the function of human resources. The capability to perceive changes and programming of functions in the company. Skills of applying HRM functions. Acquiring the skills of human resources management and skills for their creative development. Ability to work in groups. Analysis of the phenomena, drawing conclusions and making suggestions for the future. Students will learn how to deal with people in an organization, how to introduce them into the working process, how to motivate, educate and reward them, in order to achieve better performance and more favorable working environment. They will be able to solve practical problems in the field of HRM.

Subject contents:

Theoretical determination of HRM; Strategic aspect of HRM; Job analysis; Human resource planning; Recruitment of potential candidates; Selection of candidates; Staff training; Development and employee retention; Evaluation of employees' performance; Compensation and benefits; Labor relations and collective bargaining; Health and safety at work.

Teaching methods and learning activities:

Lectures, case studies, exercises, seminars, analysis of the human resource function in a particular company.

Literature:

Ilić, G. (2014). *Fundamentals of Human Resource Management*. Banja Luka: University of Banja Luka, Faculty of Economics.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Gordana Ilić, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Databases**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	6th	4L+3E	7
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Acquiring basic knowledge about databases and systems for managing databases.

Learning outcomes (gained knowledge):

Students will be able to examine data requirements, to design a database, to understand the architecture and database components, to use query languages to access database data, and to create an application for updating and displaying database data.

Subject contents:

Theoretical classes:
Introduction: Database management systems and data models. Entity-relationship model: Model concepts. Entity-relationship model: Limitations. Operations. Examples. Relational model. SQL: Structure. SQL: Limitations. SQL: Operations. Object databases. Object-relational model. Active databases. XML as a data model. Database Management System Features. Database Design: System and User Requirements Analysis. Conceptual modeling. Database design: Normalization of relations. Preparing for the exam. Practical classes: Database management systems and data models. Entity-relationship model: Creating simple models. Entity-relationship model: Creating complex models. Relational model: Relational algebra. Relational calculation. SQL: Structure. SQL: Limitations. SQL: Operations. SQL: Tasks. Object, object-relational, and active databases: Examples. XML as a data model. Database Management System Features. Database Design: System and User Requirements Analysis. Conceptual modeling. Database design: Normalization of relations. Preparing for the exam.

Teaching methods and learning activities:

Lectures, seminar classes and practical exercises.

Literature:

Lazarević, B., Marjanović, Z., Aničić, N., & Babarogić, S. (2010). *Databases*. Belgrade: FON, Belgrade.
Additional literature: Referenced at the end of each chapter of the textbook which represents the basic literature.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Entrepreneurship and Innovations**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	6th	4L+3E	7
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The subject enables students to understand the importance of entrepreneurship and innovations in all forms of organization and society and to understand entrepreneurship as a way of behavior and action. Students acquire the ability to learn the basic principles of modern entrepreneurship in the economic theory and practice, as well as to acquire the basic skills and competences of creative thinking, proactivity, acceptance of risks, planning and looking for opportunities, teamwork and the transformation of opportunities and ideas into feasible entrepreneurial ventures.

Learning outcomes (gained knowledge):

As one of the eight fundamental life competencies defined by the EU, needed to each individual for success in life, the subject is designed to encourage entrepreneurial behavior and action in students, from individual level to the level of complex organizational systems in all sectors (profit, non-profit and government sector). After studying this subject, students will gain basic knowledge of doctrines, principles, strategies and concepts of creation of business ventures based on innovations whose implementation is associated with risk and uncertainty. Students will be able to find innovative solutions in modern business using key knowledge from entrepreneurial economy on the methods and techniques of economic decision-making by applying modern information and communication technologies in relation to entrepreneurial ventures.

Subject contents:

Understanding and characteristics of entrepreneurship. Development of entrepreneurial culture as a global phenomenon. Entrepreneurial creative process. Characteristics of an entrepreneur, entrepreneurs and entrepreneurial managers. Identifying opportunities: from an idea to entrepreneurial venture - techniques of getting business ideas. Strategies of entering into the entrepreneurial venture. Corporate entrepreneurship (intrapreneurship). Family businesses. Social Entrepreneurship. Entrepreneurship of small business (entrepreneurship) - entrepreneurial and growing firms, the economy and the importance of small businesses. Organizational culture and entrepreneurial orientation. Creativity and entrepreneurship. Entrepreneurship and innovations. Sources of innovation and commercialization of innovations. Information and communication technologies and e-business. Financing of entrepreneurial ventures. Entrepreneurial environment and entrepreneurial infrastructure. Business forecasting and megatrends. Business planning of entrepreneurial ventures.

Teaching methods and learning activities:

Lectures i.e. transfer of systematic knowledge from the literature on entrepreneurship and practical examples. Illustrations and exercises that involve two-way communication, and students are invited to freely express their opinions on the cases to be discussed. During the semester, two study visits to successful SMEs in the Republic of Srpska will be organized, as well as guest lectures and talks with successful entrepreneurs and managers.

Literature:

Petković, S., and Milanović, M. (2017). *Laboratory of ideas. From an idea to entrepreneurial venture*. Banja Luka: University of Banja Luka, Faculty of Economics.
Paunović, B. (2017). *Entrepreneurship and Small Business Management*. 3rd edition. Belgrade: University of Belgrade, Faculty of Economics.
Deakins, D. & Freel, M. (2012). *Entrepreneurship and Small Firms*. Belgrade: Data status
Vukmirović, N. (2012). *Entrepreneurship in Economic Theory and Practice*. Banja Luka: University of Banja Luka, Faculty of Economics.

Types of assessment and grading:

Written and oral assessment, after previously passing 2 colloquiums.

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Saša Petković, PhD, Associate Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**English Language for Economists II**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	6th	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
English Language for Economists I	Passed exam

Subject goals:

Upon completion of this course a student will gain advanced knowledge of English language grammar and professional vocabulary. The student will be able to display knowledge and skills relevant to the curriculum and to use them in certain situations, which include business communication, oral and written.

Learning outcomes (gained knowledge):

Upon completion of this course a student will gain knowledge of English language grammar and professional vocabulary. The student will be able to display knowledge and skills relevant to the curriculum and to use them in certain situations, which include business communication, oral and written, analyzing reports and translating professional texts.

Subject contents:

The working day, Present simple and present continuous; Online communication, Finding and recording collocations; Company growth, Past simple; Corporate culture; Describing equipment, Vocabulary to describe objects; Processes and procedures, The present passive; Distribution and delivery, Modal verbs of obligation; Advertising and marketing, Vocabulary to talk about advertising and marketing; Making arrangements, Present continuous for future arrangements; Transport, Vocabulary for air travel; Contrast words; Working holidays; Conferences, Comparatives and superlatives; New places, new people, Present perfect and past simple; Corporate gift-giving, Countable and uncountable nouns; Teamwork, Vocabulary to describe aims and achievements; Thinking globally; Quantifiers; Describing statistics, Adjectives and adverbs, Comparison; Company finances, Finance vocabulary; Investments, Stocks and shares vocabulary; Starting up, Relative clauses; Job applications, CV and describing application Employee productivity, Infinitive and *–ing* forms, Grammar revision

Teaching methods and learning activities:

Interactive teaching.
Preparation and presentation of the seminar paper with the mandatory application of the Instructions for the preparation of scientific papers.

Literature:

Norman, W. (2006). *Business Benchmark, Pre-Intermediate to Intermediate*, Student's Book. Cambridge University Press
Brook-Hart, G. (2006). *Business Benchmark, Upper-Intermediate*, Student's Book, Cambridge University Press
Johnson, C. (2000). *Market Leader Banking and Finance*, Pearson Education Limited
Murphy, R. (2004). *English Grammar in Use*, Third edition. Cambridge University Press
Mascull, B. (2002). *Business Vocabulary in Use*. Cambridge University Press

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Milica Bogdanović, MSc, Foreign Language Teacher

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**German Language for Economists II**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	6th	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
German Language for Economists I	Passed exam

Subject goals:

Development of communication skills in business (and everyday) situations through basic strategies of integrated language skills: listening, reading, speaking and writing. Students should be encouraged to actively participate in the learning process.

Learning outcomes (gained knowledge):

Lectures are combined with communicative approach and interactive teaching, with the application of direct and eclectic methods (combination of styles, theories and ideas), whereby students develop the ability to develop their own conversation skills or to discuss specific topics through various forms of work (individual, group or paired). In addition, students are given the opportunity to orally present the selected topics or contents, as well as to design posters, graphics and statistics on a given topic. An audiovisual method (listening to texts or dialogues, watching awarded short films in the German language) makes learning more diverse and more interesting.

Subject contents:

Themengebiete: Die richtige Kleidung bei einem Vorstellungsgespräch; Tipps für ein Vorstellungsgespräch (Was man bei einem Vorstellungsgespräch [nicht] machen sollte); ein Vorstellungsgespräch vorbereiten und führen.
Als weitere Grundlage des Sprachlernprozesses dienen fachbezogene Themen und Texte. (Themengebiete: Eine Erörterung zum Thema Bargeld [oder Kreditkarte] schreiben; Worauf legt man Wert bei der Wahl eines Hotels?; Werbung für ein neues Produkt machen; Outsourcing). Produktives Schreiben: Informeller Brief; formeller Brief (Bestellung, Beschwerde, Angebot, Bitte); informelle E-Mail; formelle E-Mail (Elemente). Grafiken und Statistiken beschreiben (Redemittel zur Beschreibung von Grafiken und Statistiken). Für weitere Lernziele ist die Verwendung von authentischen Hörtexten und deutschen Kurzfilmen (u. a. Mobile payment: Konzepte des Bezahlens) von großer Bedeutung. Die grammatischen Strukturen: Perfekt; Vorgangspassiv („werden"-Passiv), Konjunktiv I und II; Syntax (Dass-Satz; Indirekter Fragesatz; Kausalsatz; Infinitivgruppen mit „zu"; Relativsatz; Finalsatz; Temporalsatz; Konditionalsatz; Konzessivsatz).

Teaching methods and learning activities:

Lectures are combined with communicative approach and interactive teaching, with the application of direct and eclectic methods (combination of styles, theories and ideas), whereby students develop the ability to develop their own conversation skills or to discuss specific topics through various forms of work (individual, group or paired). In addition, students are given the opportunity to orally present the selected topics or contents, as well as to design posters, graphics and statistics on a given topic. An audiovisual method (listening to texts or dialogues, watching awarded short films in the German language) makes learning more diverse and more interesting.

Literature:

Heuer W.; Schober E.; Dahmen K.; Pepe R. (2009). *Schritte plus im Beruf 2-6. Akutelle Texte aus Wirtschaft und Beruf.* Ismaning: Hueber Verlag.
Becker, N.; Braunert, J.; Eisfeld, K. H. (2013). *Dialog Beruf 2. Deutsch als Fremdsprache für die Grundstufe.* Ismaning: Hueber Verlag.
German short movies; Professional journals published *online* on the websites.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Amira Žmirić, PhD, Assistant Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**

	Academic undergraduate studies – I Cycle	
	Study program(s):	**Business Informatics**

Subject name	**Russian Language for Economists II**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	6th	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
Russian Language for Economists I	Passed exam

Subject goals:

Adopting the language of the profession at a higher level in business and everyday situations, especially business within the four basic language skills: *listening, speaking, reading and writing*. The level of knowledge of students should be raised to a higher level. Translation of professional texts from Russian to Serbian and Serbian to Russian language must be a permanent task.

Learning outcomes (gained knowledge):

Successfully completed phase during two years of work to increase the level of knowledge should give results and raise the level of knowledge of the Russian language among students. They should be able to express themselves in the Russian language orally and in writing, with particular attention paid to the economic-business terminology in Russian. Students will be able to apply the adopted grammatical structures, and to present a variety of topics from every day and professional contents both in writing and orally. Students will be able to properly explain the requests in contracts, fixed and variable costs and interests on invested money, and to express disagreements, complaints, requests, offers, appeals, etc.

Subject contents:

Экономика против экологии. Ярмарки выставки. Охрана природы, Азбука брижевой деятеыности, Экономика предходного периода, Рынок: утопия или реальность, Рынок и право. Расчётны счёт. Цели системы маркетинга Бартерная торговля. Внешнеторговые документы. Потверждение заказан. Конктракт купли-продажи. Количество товара. Качество товара. Цена товара. Платеж. Упаковка и маркировка. Гарантии (гарантный срок). Страхование Нарушение выполнения обязательности. Юридическиен адресасторон. Вцтречна торговля. Тендер, Заказ Запрос, Платежные поручения, Чек, Вексель, Таможные документы, Схема коммерческого письма, Препроводителььные письма, Потверждения, Ответы на запросы, предложение, Ответы на предложение, деловые письма, переписка повопросам: гарантии, участия, цены, рекламыюю

Граматика: Сложное предложение, сложносочинённые и сложноподчинённые. Числительные и прилагательные, выражение числа и качества, Формые глагола, глаголые движения, употребление.

Teaching methods and learning activities:

Communicative approach to language learning is a proven method of learning that enables students to develop their ability of having a dialogue or discussion on a particular topic. Students are given the opportunity of oral and written expression of their needs and desires, and the successful conduct of the dialogue. Writing dictation and often translating professional texts from Russian to Serbian and Serbian to Russian language.

Literature:

Aleksić, B. (2000). *Russian Language for Economists*. Belgrade: Faculty of Economics;
Marojević, R. (2009*). The Grammar of Russian Language*. Belgrade: Institute for Textbook Publishing.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Momir S. Lakić, MSc, Foreign Language Teacher

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Customer Relationship Management (CRM) Systems**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	6th	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The goal of the subject is to familiarize students with models, forms and infrastructure of the CRM system, in order to enable them to use such systems in practice.

Learning outcomes (gained knowledge):

Students are trained to design and implement simple CRM systems.

Subject contents:

Models and forms of e-business. E-commerce. E-business strategies. Internet business plan. Software components and e-business applications. Customer Relationship Management - CRM. The most important global solutions: SAP, Navision, Oracle and others. Integration of CRM into a web portal. SugarCRM. Examples. Work on seminar papers. Overview of the main characteristics of domestic solutions.

Teaching methods and learning activities:

Lectures, seminar classes and practical exercises.

Literature:

Chaffey, D. (2009). *E-Business and E-Commerce Management* (4th Edition). Prentice Hall.
Bret J.W., & Ellen M. (2008). *Concepts in Enterprise Resource Planning*. Course Technology.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Software Engineering**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	6th	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Mastering the basics and advanced concepts of software engineering.

Learning outcomes (gained knowledge):

The students are able to use modern principles and techniques of software engineering.

Subject contents:

Theoretical classes. Basic concepts of software development process, modeling and UML language, pattern design and refactoring. Use cases, domain modeling, and class diagrams. Software tools for modeling. Advanced concepts of modeling the structure. Advanced concepts of behavior modeling. Pattern design - idea and overview. Basic designs of pattern. Patterns for analysis - idea and overview. Basic patterns for analysis. The concept and principles of refactoring. Basic refactoring and refactoring tools. Advanced concepts of the pattern design. Advanced concepts of patterns for the analysis. Skills of combining and using learned concepts. Recapitulation. Practical classes: Exercises, other forms of teaching, study research work, introduction to the development environment. Software tools for modeling. Diagrams of use cases. Structure diagrams. Diagrams of behavior. Design patterns. Patterns for analysis. Refactoring. Recapitulation.

Teaching methods and learning activities:

Lectures, seminar classes and practical exercises.

Literature:

Fowler, M. (2004). *UML Distilled 3rd Edition.* Addison-Wesley.
Fowler, M. (1997). *Analysis Patterns*. Addison-Wesley.
Gamma, E., Helm, R., Johnson, R., & Vlissides, J. (1995*). Design Patterns: Elements of Reusable Object-Oriented Code*. Addison-Wesley.
Fowler M. (1999). *Refactoring: Improving the Design of Existing Object-Oriented Code.* Addison-Wesley.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Web Programming**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	6th	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Mastering the basics and advanced web programming concepts.

Learning outcomes (gained knowledge):

Students are able to program web applications at the currently most important development platform, as well as to use appropriate software programming environments.

Subject contents:

Theoretical classes. Basic concepts. An example of a simple web application. Web frameworks and MVC pattern. Development of Client Web Applications. Data entry. Web forms. Validation of the entry. More complex web applications. An example of a web store. Integration with middle layer and databases. Creating web components. Localization of web applications into regional languages. Recapitulation of the learned contents. Practical classes: Exercises, other forms of teaching, study research work, introduction to the development environment. Tapestry framework. Web forms. Validation of the entry. Linking to the application layer. Creating web components. Localization.

Teaching methods and learning activities:

Lectures, seminar classes and practical exercises.

Literature:

Lectures: slides and practical study examples related to particular techniques and software tools.
Exercises: in the Computer room on a practical project.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

The fourth year of study

Subject name	Winter semester		Summer semester		ECTS
	L	E	L	E	
E-business	4	3			8
Strategic Management	4	2			7
Project Management	4	3			7
Elective Subject 4	3	2			6
Professional Practice					2
Multimedia and Creative Technologies			4	3	6
Digital Marketing			4	2	6
Design of Business Information Systems			4	2	6
Business Process Management			3	3	5
Professional Practice					2
Elective Subject 5: Final Paper					5
TOTAL:	15	10	15	10	60

Elective subjects in the fourth year:

1. Object-oriented Programming,
2. E-government,
3. Quality Assurance in IT.

Note on the selection of elective subjects:

- the minimum number of students for the elective subject in the fourth year of study is ten. If students choose in the survey two or more elective subjects with a minimum of ten candidates per subject, the lectures will be carried out in parallel in all subjects chosen by the allowed minimum number of students.

Final paper: The final paper will be written in the subject of student's choice in the form of professional (final) paper and will be defended before the three-member committee. For the successfully defended final paper ECTS points will be awarded as well as the unique mark from 5 (five) to 10 (ten), pursuant to Article 58 of the Rules of Study in the I and II cycle studies at the University of Banja Luka. The final mark from the final exam is part of the average mark of passed exams.

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**E-business**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	7th	4L+3E	8
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Introducing students to Internet technology, as well as modern forms of business that is based on intensive use of information, especially Internet technology and e-business. The concept of customer relationship management and business intelligence in terms of e-business is particularly covered. The goal is to point out to the profound changes that are taking place in the sphere of modern economy under the influence of Internet technologies and e-business and manifesting through the so-called paradigm of New economy and the phenomenon of economic globalization.

Learning outcomes (gained knowledge):

Systematization and analysis of notions and concepts of e-business will give students the necessary knowledge for starting, introducing and practicing e-business activities in practice.

Subject contents:

The emergence and development of the Internet, analysis of the general situation in the Internet, principles of operation of the Internet, ways to connect to the Internet; Standard web-services; E-business; Fields of application of e-business (electronic data interchange, electronic sales of goods and services, electronic purchase, electronic trade and models of electronic trade, electronic marketing, electronic capital trade, electronic reservation system, electronic banking and online financial transactions, electronic payment systems, electronic publishing, electronic entertainment and recreation, electronic mobile business); Impact of information technology on the powers of competitive advantage in e-business; Information technology and Porter's value chain (input logistics, production, output logistics, supply chain management, marketing and sales, after-sales services, corporate infrastructure, human resources management, development, procurement). Business Intelligence (BI). Knowledge management and business intelligence (collective memory, corporate intranets and portals for the support of decision-making, extranets and inter-organizational portals, measurement and performance analysis of web sites). Customer relationship management (CRM). Data storage and methods and tools for the implementation of knowledge from data. Forms of abuse of information technology in e-business; Forms of protection against abuse of information technology in e-business (control of confidentiality - cryptography, access control, integrity control, control of availability, control of denial impossibility). Protection of privacy of individuals working on the Internet. The new economy and economic globalization.

Teaching methods and learning activities:

Lectures, case studies and exercises on the computer.

Literature:

Aleksić Marić, V. (2008). *E-Business.* Banja Luka: Faculty of Economics.

Types of assessment and grading:

Passed test on computer is a prerequisite for taking the final exam.

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Lectures, case studies, and exercises on computers.

Name of the professor who provided the information: Vesna Aleksić Marić, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Strategic Management**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	7th	4L+2E	7
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The acquisition of basic knowledge in the field of strategic management and entrepreneurship, particularly in commercial organizations. The study of the theory and development of organization with aspects of the methods and techniques in the system of strategic planning and implementation; definition and selection of strategies, establishing strategic vision, mission and business objectives. The mission, objectives, management by objectives. Basic characteristics of individual methods and techniques of control and strategic control.

Learning outcomes (gained knowledge):

Theoretical, practical and applicative knowledge and skills are outcomes of the study program in the function of acquiring theoretical and practical knowledge and skills in basic vocational studies as a prerequisite for implementation of the study program.

Subject contents:

The term and characteristics of strategic management, the term of strategic management, process, phase and concept of strategic management; Planning, long-term planning, strategic planning; Establishing a strategy; Implementation of the strategy; Establishing strategic vision, business mission and objectives; Mission; The objectives, management by objectives; Analysis of external and internal environment; The environment of enterprises; Analysis of the external environment, analysis of the internal environment; Strategy - definition and selection of strategies; The stages of the strategy selection; Strategic options and their selection; External and internal aspects of the observation of the impact on the company and the selection of strategic option; The division of strategies; Prediction of the quality of decisions - Adizes methodology of decision making; Key determinants of individual strategies; Functional level of strategy; Strategies at the level of business functions; Strategies of a strategic business unit; Strategies of a corporation; Strategic management and its techniques; Basic characteristics of individual methods and techniques - Delphi method; The method of critical success factors; The scenario method; Simulation method; Method of strategic wedges; Portfolio management; BCG matrix; GE McKinsey matrix, etc.; Implementation of the strategies; Basic concepts of character and strategic changes; Nature of the tasks of the implementation of strategies; Contingency theory; Results of the strategic formulation and implementation; Implementation of strategies and management components of tasks, leadership and decision-making styles; Control and strategic control; The concept and purpose of the control; Strategic control as a process and system of feedback.

Teaching methods and learning activities:

Oral presentation, conversation and discussion, text method and exercise method. Teaching modalities incorporate: a case study, project tasks, reports from roundtables, essay questions, written exercises, homework assignments, texts, tutorials and video presentations.

Literature:

Johnson, G.; Whittington, R.; Scholes, K. (2011). *Exploring Corporate Strategy. Text and Cases. 9th edition*. FT Prentice Hall;
Jovanović, P. (1999). *Strategic management*. Belgrade: Grafoslog;
Ateljević, J.; Kulović, Dž. (2013). *Strategic Management: New Perspectives*. Belgrade: Data status.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Jovo Ateljević, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	

	Academic undergraduate studies – I Cycle	
	Study program(s):	**Business Informatics**

Subject name	**Project Management**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	7th	4L+3E	7
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The purpose of studying this subject is to enable students to understand the paradigm of the science of project management, to master the basic techniques of preparation, analysis, evaluation and execution of the project. The main goal of the project management is to reduce risk and uncertainty, i.e. to increase the likelihood of achieving results within specified timeframes and with the projected cost. An important goal of studying this subject is that students learn how to understand and make investment decisions and implement projects.

Learning outcomes (gained knowledge):

After completing the program, students will be able to explain the life cycle of the project, perform its market and financial analysis, analyze and project the business activities of the project bearer, apply investment criteria and make investment decisions. Students will be able to develop a feasibility study (justification) of the project, to apply the methods of project risk management by life cycle phases of the project, and to understand the advantages and disadvantages of different sources of funding projects. After completing the course, students will be able to implement the project activities according to the principles of the project cycle.

Subject contents:

Theoretical development of the science of project management; Concept, types and basic characteristics of projects; Methodological concept of the preparation, analysis and evaluation of projects; Life cycle of the project - first phase of the life cycle. Market and technical and technological analysis of the project; Financial analysis of the project; Investment methods of evaluation of the profitability of projects; Financing projects; Project management in the second phase of its execution; The third phase of the project life cycle; Managing project risks; Software tools for project management.

Teaching methods and learning activities:

Methodology of work with students is based on lectures and exercises. Lectures theoretically analyze problems, while the exercises in interactive teaching with students analyze concrete projects and cases from practice. The program also includes students' presentations of the feasibility study (justification) of the project.

Literature:

Đuričin, D.; Lončar D. (2010). *Management by projects: Third Edition*. Belgrade: Faculty of Economics;
Bendeković, J. (2007). *Preparation and Evaluation of Investment Projects*. Zagreb: FOIP library;
Omazić, A. M.; Baljkas, S. (2005). *Project management*. Zagreb: Synergy Publishing Ltd. Zagreb.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Saša Vučenović, PhD, Assistant Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Object-oriented Programming**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	7th	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Adopting one of the software design methods using patterns of architecture and design. Learning and using advanced concepts of modern object-oriented programming languages (Java or C #).

Learning outcomes (gained knowledge):

The students are able to implement software systems using modern object-oriented programming language (Java or C #).

Subject contents:

Theoretical classes: The basics of software design. Design context in the software development lifecycle (Unique software development process, Larman software development method, ...). Strategies and methods of software design. Architectural design. Designing a user interface. Designing the application logic. Designing a database. Designing algorithms. Pattern of architecture and design. Notations and software design tools. Implementation technologies. Working with students on the development of the logical structure of seminar paper. Practical classes: exercises, other forms of teaching, study research work. Working environment for writing programs. Competitive programming - threads. Working in a network - sockets. Remote Method Invocation (RMI). Protection. Working with a database. Connecting a GUI to a database through the network. Reflection. JAXP and JAXB XML technologies. Process of preparation of seminar papers with examples.

Teaching methods and learning activities:

Lectures, exercises and work on practical examples.

Literature:

Vlajić S., Savić D., Stanojević V., Antović I., Milić M. (2008). *Software design - advanced Java technologies*. Zlatni presek, ISBN: 978-86-86887-03-0, Belgrade.
Horstmann CS., & Cornell, G. (2000). *Core JAVA 2, Volume II – Advanced Features*. Sun Microsystems Press California, USA.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**E-government**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	7th	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The goal of the subject is to train students for the application of e-business technologies in public administration, as well as for designing and developing e-government services.

Learning outcomes (gained knowledge):

Students should learn the principles of e-government, as well as the principles of designing and implementing e-business services in public administration.

Subject contents:

Theoretical classes: The concept of the information society. Models of e-business in public administration. Legislation and the EU framework for the development of e-government services. Infrastructure and architecture of the e-government system. Types of e-government services. Phases of planning and realization of e-government. Communication channels, monitoring and responding to user requests. Obstacles and barriers in the development of electronic administration. Protection in e-government systems. Identification documents. Technology, smart cards. Application of biometric methods in recognition. PKI infrastructure, certification bodies, certificates, digital signature. RF technology. Digital democracy. Types of e-democracy. Political operation on the Internet. Voting over the Internet. Virtual diplomacy. Mobile administration. E-health as a segment of e-government. Review of the development of e-business services in public administration in the world and in the region. Practical classes: Testing and analysis of existing software solutions in e-government domains. Working with digital certificates and certification bodies. Working with digital signature technologies and cryptographic methods. Working with RFID technology solutions. Testing and analysis of biometric identification methods. Development of e-government services.

Teaching methods and learning activities:

Lectures, exercises and work on case studies

Literature:

Vasković, V., *E-business in Public Administration*, script.
Mazinjanin, Đ. (2008). *Methods of communication of the government and citizens in e-business of a city administration*.
Khosrow, M. (2000). *Encyclopedia of E-Commerce, E-Government, and Mobile Commerce*. Information Resources Management Association, USA.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Quality Assurance in IT**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Elective	7th	3L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Students should: be familiar with the basics of the quality system, understand the standards, gain knowledge about the goals, organization, implementation and effects of the quality system, demonstrate knowledge of the methods used to improve its application, monitor and apply novelties in the quality system.

Learning outcomes (gained knowledge):

Students need to understand the functioning of the quality system, develop the ability to communicate with experts from other fields, correctly analyze and interpret the available information, give adequate recommendations and apply the appropriate methods in order to increase the efficiency of the management system.

Subject contents:

System theory. Industrial systems. Quality (quality comprehension, quality circle, quality of semi-products, quality of products, quality of services, quality of software, determination of features and characteristics of the quality). Measurement, testing and control. Determination of quality values. Quality management. ISO 9000 standards of the quality management system. Quality system. Managing quality with the computer. Managing economics of quality. Methods and techniques of the quality system. Quality system documentation.

Teaching methods and learning activities:

Lectures are performed by combining ("ex cathedra" / "case") method. Theoretical teaching content is presented through the "ex cathedra" method by using presentations; The second part of the lectures is conducted by using the "case" method of presented analysis of characteristic cases and examples that illustrate the theoretical content. The main form of work will be the processing of cases from practice, in order for students to learn how to use acquired knowledge for practical purposes. Seminars include the preparation, presentation and defense of seminar paper with the application of the Instructions for the preparation of scientific papers. Through the themes of seminar papers, the whole theoretical content of the subject is covered.

Literature:

Todorović, Z. (2009). *Quality management*. Banja Luka: Faculty of Economics.
Klarić, S., & Pobrić, S. (2009). *Quality management - Tools and methods of improvement*. Mostar: Faculty of Mechanical Engineering

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Igor Todorović, PhD, Associate Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Digital Marketing**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	8th	4L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The goal of this subject is to introduce students to Internet marketing using business models of the appearance on the Internet and to master the techniques of creating an Internet marketing plan.

Learning outcomes (gained knowledge):

Students are trained to design and implement an Internet marketing plan.

Subject contents:

Theoretical classes. The basics of marketing. Models of business appearance on the Internet. Internet marketing plan. Internet marketing strategies. Techniques and tactics. SEO techniques. Social media. Social network. Mobile marketing. Customer Relationship Management. Business intelligence in internet marketing. Trends in internet marketing. Practical classes. Internet marketing technologies: forum, blog, RSS. Internet marketing technologies: CMS, affiliate, SEO, Google services. Internet business plan. Internet marketing plan. Domain registration, free hosting, paid hosting. Web design, study on visual identity. Installation of WordPress CMS. Development of the portal. SEO-example on WordPress. CRM, integration with WordPress. Integration of an e-store with WordPress. Application of Google and social networking services. Internet advertising. Defense of papers.

Teaching methods and learning activities:

Lectures, exercises, laboratory exercises, distance education, case studies.

Literature:

Ivković, M., & Radenković, B. (1998). *Internet and modern business*, monograph, editors. Zrenjanin: Technical Faculty "Mihajlo Pupin", Zrenjanin.
Scott, D. M. (2007). *The New Rules of Marketing and PR*. John Wiley & Sons.
Chaffey, D. (2006). *Internet Marketing: Strategy, Implementation and Practice* (3rd Edition). Prentice Hall.
Strauss, J., & El-Ansary, A. Frost, R. (2006*). E-Marketing* 4/E. Prentice Hall.

Types of assessment and grading:

Continuous evaluation of knowledge through testing and presentations of seminar papers and oral exam.

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: Perica Macura, PhD, Full Professor

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Multimedia and Creative Technologies**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	8th	4L+3E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

To gain the knowledge and skills needed to work in the multimedia production team. Understanding the role of producers, directors and screenwriters as team leaders.

Learning outcomes (gained knowledge):

Students will gain the necessary knowledge in the field of multimedia production.

Subject contents:

Contents of the subject. Theoretical classes: Industry of multimedia. Market. Technologies. L-02: Multimedia studio. Devices. Integration. Use. L-03: Interactive design. Basic roles. Producer. Director. Screenwriter. L-04: Components of the multimedia system. Design of multimedia systems for training and learning. Game design. L-05: Basics of production. Instructions. Characteristics. Genres. L-06: Interactive process of designing. Design team. Writing the concept. L-07: Competitiveness analysis. Top-level design. Cost/Benefit analysis. L-08: Functional specification. L-09: Overview of the development process. Clients. Phases of development. L-10: Research phase. Qualification of clients and implementers. Key points of the job. Determination of the subject of work. Metrics. Preliminary implementation plan and budget. Suggestions and offers. Contract. L-11: Design phase. Design phase outputs. Graphics. (Display area. Icons. Font. Roles. Casting. Screenplay. Pallets.). L-12 Sound. (casting, music, sound effects.) Technical issues. (tools, technical parameters, software and databases.) Role of the producer. Role of the director. Role of the screenwriter. L-13: Prototype. Purpose of the prototype. Planning and realization of the prototype. Testing of the prototype. Use of test results. L-14: Production. Production phase outputs. Approval of production materials. Tasks in the production phase. Roles of producer and director in the development phase. L-15: Alfa and beta discs. Gold master. Package design. Archiving. Practical classes: exercises, other forms of teaching, study research work. E-01: Introduction to multimedia production (Introduction to devices and tools) E-02: Forming project teams and defining project tasks E-03: Workshop: Role-play and division of team into basic roles E-04: Workshop: Generating ideas for a project production and defining basic system components - target group, content, interactive characteristics, structure, controls, the look of application E-05: User interfaces. Generations of user interfaces. Designing a user interface. Examples of user interfaces for interactive applications. E-06: Workshop: Writing a concept and competitive analysis (creating competitive matrix) E-07: Workshop: top-level design and cost-benefit analysis E-08: Workshop: creating a functional specification. E-09: Research. Researching the needs of users of the production project. Planning a research meeting. Analysis report. Preliminary development plan. Preliminary budget. E-10: Design. Background design and display. Icon design. Character design and development. Screenplay. E-11: Soundtrack. Recording characters and background speech. Selection of music. Selection of sound effects. Preparation of final plan and final budget. E-12: Making a prototype. Graphics. Video. Sound. E-13: Production. E-14: Testing. E-15: Defense of project tasks.

Teaching methods and learning activities:

Lectures, exercises, practical work, consultations.

Literature:

Starčević, D.; Stavljanin, V. (2013), *Multimedia*. Belgrade: FON Belgrade
Elin, L. (2001). *Designing and Developing Multimedia – A Practical Guide for the Producer*. Director and Writer, Allyn & Bacon, MA, USA.

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Design of Business Information Systems**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	8th	4L+2E	6
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

The goal of studying the subject is to familiarize students with modern theoretical and practical aspects of information systems design. The ultimate goal is to train students for jobs of system analysts and information system designers through a gradual introduction with the modern methodology of system analysis and information systems design.

Learning outcomes (gained knowledge):

The need for economists who, in addition to having a good knowledge in the fields of economics and management, have the knowledge and the ability to participate directly in the information systems design activities is very prominent. Knowledge, competencies and skills that a student can acquire by studying problems of information systems design represent an educational basis for application in the professional practice.

Subject contents:

Management of projects and risks of information systems development. Strategic planning of information systems development. Development cycle of information systems design. Problem recognition/preliminary research (operational feasibility, financial and economic feasibility, technical feasibility). Determination of requirements (process improvement, business improvement, offer of new products and services, faster execution of business processes, reduction of costs of production of goods and services, conquest of new regions and markets). System design (conceptual design, logical design, physical modeling, output-information and results, input-data and processing information, stored data – databases and files, processing and procedures, controls). Design and construction (purchase of software and services, programming, testing). Implementation (training, location preparation, transition strategy to the new system). Evaluation and continuation of development. Models of information system design. Prescriptive models (waterfall model, incremental model, RAD model). Developmental or evolutionary models (prototype model, spiral model). Special models (component-based development model). Unique process model. Methods and techniques for modeling information systems (process modeling, data modeling, modeling of functions, modeling of objects). Other methods and techniques (system block diagrams, data flow diagrams, action diagrams, pseudocodes, HIPO techniques, Warnier-Orr diagrams, data dictionary). Means of information systems design (UML, CASE tools). Methodologies for information systems design (structural methodologies, object methodologies, agile methodologies). Revision of information systems.

Teaching methods and learning activities:

Lectures, seminar papers, exercises on computers, students' presentations.

Literature:

Stankić, R. (2013). *Design of information systems*. Belgrade: Faculty of Economics

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information:

	UNIVERSITY OF BANJA LUKA **FACULTY OF ECONOMICS**	
	Academic undergraduate studies – I Cycle	
	Study program(s): **Business Informatics**	

Subject name	**Business Process Management**			
Subject code	**Status of subject**	**Semester**	**Number of classes**	**Number of ECTS points**
	Compulsory	8th	3L+3E	5
Professor(s)	According to the decision of the Scientific-Educational Council of the Faculty of Economics			

Prerequisites	**Type of prerequisites**
No prerequisites.	

Subject goals:

Acquiring theoretical foundations and practical knowledge necessary for modeling business processes and familiarization with basic techniques of their efficient automation.

Learning outcomes (gained knowledge):

Students will be able to analyze, identify and describe business processes using appropriate formal methods, and to define the way of their automation by using modern software systems.

Subject contents:

Theoretical classes: The concept of business processes (BP). Modeling organizational systems. Theoretical fundamentals of BP modeling. Petri nets, state change diagrams, life cycles of objects. BPMN and UML activity diagram. Basics of the methodology of business process modeling. Analysis of business processes. Hierarchical decomposition. Business process specification. Choreography and orchestration. Standards in business process modeling. View of the UMM (UN/CEFACT modeling methodology) standard. UMM models. Business Process Management Systems. Process-based control systems. Service oriented architecture (SOA). BPEL and WSDL standards.
Practical classes: Examples of BP. Relationship with other management disciplines. Petri nets and UML. State change diagram. UML activity diagram. Models in BP modeling. Analysis of business processes. Specification of BP. Choreography and orchestration. Standards for BP modeling. View of the UMM. UMM views and models. Views of individual software systems for BP automation. BP metamodels. Automatic course of BP. SOA. BP Management.

Teaching methods and learning activities:

Lectures, exercises, case studies.

Literature:

Silver, B. (2009). *BPMN Method & Style: A levels-based methodology BPM process modeling and improvement using BPMN 2.0*, second edition. Cody-Cassidy Press. ISBN: 978-0982368107
Havey, M. (2005). *Essential Business Process Modeling*. O'Reilly Media, ISBN: 978-0596008437

Types of assessment and grading:

Attendance	2 points	Colloquium I	0–20 points	Final exam	0–50 points
Class activities (seminar papers, discussions, case studies)	0–8 points	Colloquium II	0–20 points		

Special remarks for the subject:

Name of the professor who provided the information: