Study Programme	Business Informatics
Qualification awarded	First degree
Professional title	Bachelor (applied) in Business Informatics
Length of programme	3 years/6 semesters
Number of ECTS credits	180
Level of qualification according to the National Qualification Framework and the European Qualifications Framework	VS-1 (NQF) First cycle (EQF)
Field of study	Social sciences and humanities
Mode of study	Full-time
Language of instruction	Serbian
Admission requirements	Previously completed secondary education and passed entrance examination
Work-based learning	In the computer laboratories equipped with state-of-the-art equipment; In companies and institutions whose business activities are relevant to the study programme profile.
Access to further studies	Graduates are eligible to enroll master applied studies.

Programme objectives

The main objective of the study programme is to provide students with advanced professional knowledge of theories and principles of information technology and information systems and their application in business. Students will have acquired professional and practical knowledge and skills in the domain of information systems and technologies, as well as in the field of marketing, management and finance, necessary for successful work performance and careers in the field of business informatics in companies, banks and other institutions. Students will become familiar with the current issues and challenges of the modern business environment, as well as the importance and role of business informatics in this environment.

Programme outcomes

General outcomes

The Business Informatics graduates will be able to:

- analyze and evaluate various concepts, models and principles of the theory and practice of business informatics;
- solve complex business problems in the field of business informatics that may occur in the modern business environment;
- use state-of-the-art equipment and software tools;
- identify and critically analyze problems;
- apply teamwork, communication, foreign language, problem-solving, analytical and critical thinking skills they have acquired throughout their studies to their workplace activities;
- demonstrate responsibility and adhere to ethical standards of their profession in managing complex projects;
- demostrate a positive attitude towards personal and professional development and lifelong learning;
- continue their education at master applied studies in the country or abroad.

Specific outcomes

The Business Informatics graduates will be able to:

- apply the basic principles of information and communication technologies;
- design and implement business applications;
- collect, process, analyze and present data;
- use the Internet for business purposes in accordance with legal regulations;

- perform activities in the domain of electronic commerce, electronic banking and internet marketing; - install and administer operating systems in local computer networks and design simple networks; - identify objects and relationships between them in information modelling process; - design and use databases; - apply the basic methods of data protection; - create web presentations and publish content on the web; - design, create and test business software applications, both traditional and mobile.	
Occupational profile of graduates	The Business Informatics graduate will be qualified and prepared to work in small and medium-sized enterprises and perform jobs providing standard IT business support in various areas of business (banking, insurance, trade, marketing, tourism, etc.) and develop business applications in IT companies. They will also be prepared to pursue careers in market research agencies, insurance companies, pension funds, etc. The programme prepares students for the following jobs/positions: system administrator, database designer, information systems designer, programmer, database developer, web designer, mobile application developer, computer service and repair technician, etc.

Business Informatics – The First Cycle Study Programme

Study Programme Structure

No.	Code	Course	Semester	ECTS
FIRST YEAR				
1.	EKO	Economics	1	7
2.	MAR	Marketing	1	7
3.	UIN	Introduction to Informatics	1	7
4.	EN1	English 1	1	7
5.	KVM	Quantitative Methods	2	7
6.	MEN	Management	2	7
7.	OBP	Data Processing	2	7
8.	ORN	Basics of Accounting	2	7
9.	SPE1	Professional Practice 1	2	4
			Total ECTS credits per year	**60**
SECOND YEAR				
10.	PFI	Business Finance	3	7
11.	OPP	Basics of Business Law	3	7
12.	PRO	Basics of Programming	3	7
13.	BZP	Databases	3	7
14.	EPO	Electronic Business	4	7
15.	VBD	Web Design	4	7
16.	Elective course 1: (one of the offered courses is selected)			
	RGM BIS	- Computer Graphics and Multimedia - Information Systems Security	4	7
17.	E2I	English for Information Technology 2	4	4
18.	Elective course 2: (one of the offered courses is selected)			
	UKE PKO	- Quality Management and Ecology - Business Communication	4	3
19.	SPI2	Professional Practice 2	4	4
			Total ECTS credits per year	**60**
THIRD YEAR				
20.	PPA	Business Application Programming	5	7
21.	PIS	Information Systems Design	5	7
22.	Elective course 1: (one of the offered courses is selected)			
	VMA IPR	- Web and Mobile Application Development - Internet Law	5	7
23.	Elective course 2: (one of the offered courses is selected)			
	MUS PDZ	- Services Marketing - Entrepreneurship	5	7
24.	E3I	English for Information Technology 3	6	4
25.	Elective course 3: (one of the offered courses is selected)			
	FTR MEB MNP	- Financial Markets - International Business - Sales Management	6	7
26.	RNM	Computer Networks	6	7
27.	APD	Data Analysis	6	7
28.	Final projects: (one of the offered projects is selected)			
	PPI PPR	- Final Project in Applied Informatics - Final Project in Programming	6	7
			Total ECTS credits per year	**60**
			Total ECTS credits	**180**

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Basics of Accounting

Lecturer(s): Jelica M. Božanić

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: First year/2nd semester

Course prerequisites: None

Course objectives

The main aim of the course is to provide accounting knowledge and develop practical skills by enabling students to understand: the role of accounting in modern business; the basic accounting concepts, principles and techniques of recording business changes; the structure and content of financial statements; the role of accounting in business decision making.

Course outcomes

Upon successful completion of the course, students will be able to:
- Record the basic business changes in business records (books).
- Prepare the basic financial statements.
- Analyze the basic segments of financial statements.
- Apply critical thinking skills in making decisions regarding the use of capital.

Course content

Theoretical instruction:

1. The concept, contents and objectives of accounting
2. Accounting cycle
3. Accounting instruments
4. Accounting of assets
5. Equity and liabilities accounting
6. Cost and revenue accounting
7. Determining business results
8. Cost accounting
9. Financial Statements – the forms and contents
10. Understanding financial statements of different businesses entities

Practical course work:

1. Tasks related to creation of balance sheets, monitoring changes through successive balance sheets, accounting cycle and basic instruments
2. Application of double-entry bookkeeping
3. Basic financial statements
4. Creating and filling out different forms of payment instruments, calculations and invoices
5. Seminar papers related to chart of accounts, bookkeeping documents and payment transactions of companies

Literature

1. Božanić, J., Radovanović, S., Vasiljević, M., Janković, M., & Mihailović, N. (2015). *Osnovi računovodstva sa praktikumom*. Valjevo: VIPOS.
2. Meigs, R., & Meigs, W. (2005). *Računovodstvo*. Zagreb: Mate.
3. Accounting laws and regulations
4. Accounting journals

Number of teaching hours: 75				Other:
Lectures: 30	Practical classes: 45	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures, presentation of seminar papers, individual and group work on case studies and presentation of work and results.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	10	Written exam	
Practical work		Oral exam	30
Colloquia	2x30	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Basics of Business Law

Lecturer(s): Slobodan Z. Nenadović

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: Second year/3rd semester

Course prerequisites: None

Course objectives

The objective of the course is to familiarize students with the basic concepts, principles and rules in the fields of civil law, property law, law of obligations, company law, commercial contract law, securities and intellectual property law, thus enabling them to successfully participate in business transactions in the real business environment.

Course outcomes

Upon successful completion of the course, students will be able to:

- Distinguish between different types of companies, the most important business contracts, securities and intellectual property rights.
- Use the most important commercial contracts in the real business environment.
- Determine different types of management and liabilities for the obligations of business entities.
- Evaluate and determine the optimal form of securing claims in specific legal transactions.
- Explain the use of securities and the importance of intellectual property protection.

Course content

Theoretical instruction:

1. Legal subjects, the concept and characteristics.
2. Private property and property law.
3. The concept, conclusion and securing the execution of contracts.
4. The most important contracts in business transactions (sales contract, lease agreement, licensing agreement, banking contracts).
5. The concept and characteristics of business entities.
6. Entrepreneur.
7. Companies (partnerships, limited partnerships, joint stock companies and limited liability companies).
8. Financial organizations (The National Bank of Serbia, commercial banks, stock exchanges).
9. Corporate groups.
10. Bankruptcy and liquidation.
11. The concept, types and characteristics of securities and their use in business transactions.
12. The concept and types of intellectual property rights and competition law.

Practical course work:

1. Conclusion of the sales contract.
2. Procedures for establishing different types of companies.
3. Practical examples of payments in domestic and international business transactions.
4. Practical examples of using collaterals.
5. Practical examples of using securities.

Literature

1. Nenadović, S. (2013). *Osnovi poslovnog prava*. Valjevo: VIPOS.
2. Vasiljević, M. (2011). *Vodič za primenu Zakona o privrednim društvima*. Beograd: Intermex.
3. Marković, S., & Popović, D. (2013). *Pravo intelektualne svojine*. Beograd: Pravni fakultet.
4. Begović, B., & Pavić, V. (2012). *Uvod u pravo konkurencije*. Beograd: Pravni fakultet.

Number of teaching hours: 75				Other:
Lectures: 45	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures, practical classes, exercises, group work, presentations, discussions regarding presentations and examples from professional and other journals and magazines which are related to the subject matter of the course.

Assessment (maximum number of points: 100)

Pre-exam obligations	**40** points	**Final exam**	**60** points
Active class participation	10	Written exam	
Practical work		Oral exam	60
Colloquia	2x15	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Basics of Programming

Lecturer(s): Jelica Ž. Protić, Miroslav R. Maksimović

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: Second year/3rd semester

Course prerequisites: None

Course objectives

Familiarizing students with the basic principles of programming as well as the basic principles of occupations that involve programming. Providing the knowledge of algorithm development and basic data structures. Enabling students to use an integrated development environment for the Java programming language, to implement the concepts of object-oriented programming and develop simple programs.

Course outcomes

Upon successful completion of the course, students will be able to:
- Enter, test and modify simple existing programs in the Java programming language and NetBeans IDE 7 development environment in accordance with the specification.
- Individually develop algorithms to solve simple problems and implement them in the Java programming language.
- Test programs they have written themselves in a specific development environment.
- Use documentation related to a specific programming language.
- Master some other programming language in the future, with the help of the acquired basics of algorithmic reasoning and procedural and object-oriented programming concepts.

Course content

Theoretical instruction:

1. Programming as a profession.
2. Introducing data. Primitive data types and constants. Character sets: ASCII and UNICODE. Identifiers, variables, declaration. Simple and complex data types.
3. Expressions as complex combination of operators and operands.
4. Program runtime and control structures. Sequences (blocks), selections (if-else, switch), iterations (while, do, for) Examples that illustrate the use of these control structures.
5. Concepts of object-oriented programming.
7. Packages. Declaration, package importing, name conflicts. Package access rights. Package hierarchy.
8. Exceptions. Debugging, the concept of exception handling. Working with Graphical User Interface (GUI).

Practical course work:

1. Demonstration of different data types, maximum and minimum values by types.
2. Working with strings and the use of appropriate methods.
3. Demonstration of arithmetic operations. Example of currency conversion in an exchange office.
4. Demonstration of control structures with typical examples: determining if a number is odd or even, calculation of the length of month, payroll calculation.
5. Forming array sums, multiplication table and a more complex example of calculation of electricity consumption.
6. Working with arrays and matrixes. Example: calculating interest on a series of savings deposits.

Literature

1. Kraus, L. (2013). *Programski jezik Java sa rešenim zadacima*. Akademska misao.
2. Votson, B. (2011). *C# 4.0: kako do rešenja*. Beograd: Mikro knjiga.
3. http://netbeans.org/
4. Maksimović, M., Petrović, A. (1996). *Programski jezik Java*. Beograd: PC PRESS.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures, practical application of knowledge in solving tasks in practical classes, computer laboratory exercises, homework assignments.

Assessment (maximum number of points: 100)

Pre-exam obligations	**50** points	**Final exam**	**50** points
Active class participation	10	Written exam	50
Practical work	4x10	Oral exam	
Colloquia		.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Business Application Programming

Lecturer(s): Ilja B. Stanišević, Branko R. Ćebić

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: Third year/5th semester

Course prerequisites: None

Course objectives: The objective of the course is to provide students with knowledge and skills to design and implement low complexity business applications in a graphical user interface using an integrated development environment (MS Visual Studio) and advanced programming language (C #).

Course outcomes

Upon successful completion of the course, students will be able to:
- Use the basic properties of MS Visual Studio IDE tool.
- Identify the basic features of object-oriented programming.
- Develop low complexity programs in C # programming language.
- Design frontside components of the application (screen forms).
- Build a desktop business application in MS Windows.
- Connect their own application to a database (SQL Server or MS Access).
- Generate printed reports in MS Word.

Course content

Theoretical instruction:

1. Integrated development environment MS Visual Studio Community, the basics of .NET Framework technology.
2. Basics of the C # programming language.
3. Creating and managing classes and objects, object lifetime, scope (visibility).
4. Parameter arrays, inheritance, interfaces, abstract classes, exceptions, events, resource management.
5. User controls, the basics of Windows Forms controls, properties and events.
6. Basics of Microsoft Presentation Foundation (MPF) controls.
7. Connecting applications to databases (SQL Server, MS Access), Dataset, ADO.NET, T-SQL.
8. Datasheet view.
9. Connecting applications to MS Office suite and generating printed reports.

Practical course work:

1. Visual Studio development environment, properties, advantages and settings, .NET Framework, IL language, applications building, working with the debugger.
2. Console applications (variables, basic types, operators, expressions, statements, methods, scope, decision statements, iterations, error and exception handling, value and reference types, stack and heap).
3. Parameters, enumerations, structures, arrays, collections, operator overloading, method overloading.
4. Classes, objects, inheritance, static classes, interfaces, abstract classes.
5. Examples of Windows Forms controls: properties and events, application of basic controls (TextBox, Label, Button, ListBox, ComboBox, RadioButton, DateTimePicker, MenuBar), event validation.
6. Examples based on Windows Presentation Foundation model.
7. Connecting an application to a database, building ADO.NET components, DataGridView control, binding controls to database values, using DLINQ queries, lambda expressions.

Literature

1. Šarp, Dž. (2013). *Microsoft Visual C# 2012 korak po korak*. Beograd: CET.
2. Votson, B. (2011). *C# 4.0: kako do rešenja*. Beograd: Mikro knjiga.
3. Johnson, B. (2015). *Professional Visual Studio 2015*. John Wiley & Sons, Inc.
4. Lipman, S. B. (2003). *C# - Izvornik*. Beograd: CET.

Number of teaching hours: 90				Other:
Lectures: 45	Practical classes: 30	Other forms of instruction: 15	Research work:	

Teaching methods: Theoretical lectures introducing and explaining theoretical concepts through practical examples; exercises in computer laboratories; individual programming assignments; group projects (designing business applications to create invoices, delivery notes, goods receipt notes, accounts receivable, etc.)

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	10	Written exam	30
Practical work – independently developed programs	20	Oral exam	
Colloquia	20	.....	
Group project	20		

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Business Communication

Lecturer(s): Biljana S. Rabasović, Nikola B. Stojanović

Course status: Elective

Number of ECTS credits: 3

Year of study/semester: Second year/4th semester

Course prerequisites: None

Course objectives

The main aim of the course is to explain the role and importance of business communication in creating successful business strategies. It is intended to provide students with knowledge and develop their skills in the field of business communication, adhering to the principles of business ethics.

Course outcomes

Upon successful completion of the course, students will be able to:

- Explain the role and importance of different forms of internal and external communication in performing business activities of a company.
- Critically analyze and compare positive and negative examples of business communication.
- Recognize the strengths and weaknesses of their own communication style and work on its improvement.
- Apply specific business communication techniques and tools.
- Propose business communication strategies for particular business entities and not-for-profit organizations.

Course content

Theoretical instruction:

1. The strategic role of communication in business
2. The concept, importance and forms of communication
3. Written and oral communication, verbal and non-verbal communication
4. Overcoming communication barriers
5. Business communication in different cultures
6. Integrated marketing communication
7. The role of social networks in business and marketing communication
8. Ethics in communication

Practical course work:

Finding and using professional literature and sources. Research and analysis of positive and negative business communication practices. Developing the skills of written, oral and non-verbal communication, as well as developing a listening culture, stage fright control and assertiveness. Determining one's own personality type and communication style. Creating an integrated marketing communication strategy for a particular business, product or service. Event organization, media relations, press releases.

Literature

1. Lehman, C. M., & Dufrene, D. D. (2015). *Poslovna komunikacija*. Beograd: Data status.
2. Materijal za vežbe, skripta. Valjevo: VIPOS.
3. Ognjanov, G. (2009). *Integrisane marketinške komunikacije*. Beograd: Ekonomski fakultet.
4. Vračar, D. (2008). *Strategije tržišnog komuniciranja*. Beograd: Ekonomski fakultet.
5. Bazić, M. (2009). *Poslovna komunikacija: savremeni put do uspeha*. Beograd: Univerzitet Megatrend.
6. Cutlip, S. M., Center, A. H., & Broom, G.M. (2010). *Učinkoviti odnosi s javnošću*. Zagreb: Mate.
7. Tomić, Z. (2006). *Komunikologija*. Beograd: Čigota štampa.
8. Mandić, T. (2003). *Komunikologija – psihologija komunikacije*. Beograd: Klio.
9. Journal of Communication Management. Emerald EarlyCite. http://www.emeraldinsight.com/

Number of active teaching hours: 60				Other:
Lectures: 30	Practical classes: 15	Other forms of instruction: 15	Research work:	

Teaching methods:

Ex-cathedra lectures, case studies, preparation and presentation of seminar papers, discussions and workshops, simulations, role-plays.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	10	Written exam	30
Practical work		Oral exam	
Colloquia	2x25	.....	
Seminar paper(s)	10		

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Business Finance

Lecturer(s): Vesna D. Marković, Nenad R. Mihailović

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: Second year/3rd semester

Course prerequisites: None

Course objectives

Acquiring knowledge and developing competencies and skills to use basic indicators of financial analysis, methods of planning and managing current assets, acceptability of investment projects and determining the optimal capital structure, as well as drawing conclusions after applying the relevant methodology and conducting analysis.

Course outcomes

Upon successful completion of the course, students will be able to:
- Recognize and define the objectives of financial management, financial policy and the process of financial control.
- Apply in practice the most significant indicators and methods of financial analysis, planning and management of the company's working capital and evaluation of the effectiveness and acceptability of investment projects.
- Analyze the obtained indicators and results and compare them with previous periods or standard values.
- Make appropriate conclusions and recommend measures to improve the financial performance of the company.

Course content

Theoretical instruction:

1. Business finance - introductory considerations (the scope and objectives of financial management, financial policy, financial control, organization of finance function)
2. Financial analysis
2. Business and financial risk and the leverage effect
3. Cash flow planning
4. Working capital management
5. Investments and evaluation of the effectiveness of investment projects
6. The sources of financing and the cost of capital

Practical course work:

In practical classes, the students work independently on certain segments of analysis, which should result in making proposals for planning and managing the assets of companies they have selected. Each student selects a company (from the web site of the Serbian Business Registers Agency or from their own city) that will serve as an example for applying the methodology adopted throughout the course. These classes have a practical dimension as the students solve the tasks that they will encounter in the real business environment by using adopted techniques and methods.

Literature

1. Kastratović, M., & Marković, V. (2009). *Poslovne finansije*. Valjevo: VIPOS.
2. Ivanišević, D. (2011). *Poslovne finansije*. Beograd: Ekonomski fakultet.
3. Brili, R. A., Majers, S. S, & Markus, A. DŽ. (2010). *Osnovi korporativnih finansija*: Zagreb: Mate.
4. Vunjak, N. (2010). *Finansijski menadžment*. Subotica: Ekonomski fakultet.

Number of teaching hours:90				Other:
Lectures: 45	Practical classes: 30	Other forms of instruction: 15	Research work:	

Teaching methods

Theoretical lectures, practical classes, case studies (the analysis of particular companies), presentation of the obtained results through discussion and drawing conclusions.

Assessment (maximum number of points: 100)

Pre-exam obligations	**50** points	**Final exam**	**50** points
Active class participation	10	Written exam	
Practical work		Oral exam	50
Colloquia	2x20	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Computer Graphics and Multimedia

Lecturer(s): Slobodan I. Obradović, Ivan D. Pantelić, Dejan M. Beljić

Course status: Elective

Number of ECTS credits: 7

Year of study/semester: Second year/4th semester

Course prerequisites: None

Course objectives

The objective of the course is to familiarize students with the role of computer graphics and multimedia in modern business and communication and enable mastering of the basic techniques of graphic and multimedia content creation.

Course outcomes

Upon successful completion of the course, students will be able to:
- Independently create a poster, flyer, brochure or a similar graphic design solution.
- Independently create a logo or an illustration.
- Make and process a photograph.
- Independently create a simple advertisement, video or commercial.
- Design and create a multimedia recording.

Course content

Theoretical instruction:

1. Raster graphics: Basic concepts (difference between vector and raster graphics, pixels, resolution, basics of color theory, formats ...), raster graphics software.
2. Creating raster files: techniques for processing raster objects (toolbox, working with layers, selection, transformation, coloring, illumination, filters, actions, text input and editing), creating content for the web, preparing for printing and publishing.
3. Vector graphics: Basic concepts (vectors, point, line, 2d, 3d objects, formats), vector graphics software.
4. Creating vector files: techniques for processing vector objects (tools, selection, transformation, coloring, typography, logo design and effects), preparing for printing and publishing.
5. Photography: Processing photographs (colors, contrast, brightness, intensity, retouching, etc.).
6. Sound: Basic terms, software. Recording, processing and editing sound and effects.
7. Video: Basic terms, video formats, processing software, recording devices. Video processing.
8. Basic animations: effects, animation software.
9. Application, case analysis.

Practical course work:

Exercise 1: Raster graphics
Exercise 2: Vector graphics
Exercise 3: Photo processing
Exercise 4: Sound processing
Exercise 5: Video editing
Exercises 6: Animation
Project - Multimedia: Create a multimedia recording on a given topic.

Literature

1. Cvetković, D. M. (2006). *Računarska grafika*. Beograd: CET.
2. Grupa autora. (2012). *Adobe Illustrator CS6*. Beograd: CET.
3. Grupa autora. (2012). *Adobe Photoshop CS6*. Beograd: CET.
4. Smith, J., & Osborn, J. (2011). *Adobe Creative Suite 5 Design Premium: digitalna učionica*. Beograd: Mikro knjiga.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Lectures combined with computer demonstrations and case analyses; computer laboratory exercises (techniques of software application) and homework assignments.
Project: Multimedia: Create a multimedia recording on a given topic.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Exercises and homework assignments	30	Written exam	30
Project	40	Oral exam	
Colloquia		.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Computer Networks

Lecturer(s): Ilja **B.** Stanišević, Ivan D. Pantelić

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: Third year/6th semester

Course prerequisites: None

Course objectives

The main aim of the course is to enable the acquisition of basic practical and theoretical knowledge of connecting modern information and communication devices, data transmission, technology and standards of modern computer networks.

Course outcomes

Upon successful completion of the course, students will be able to:
- Administer and install operating systems in Local Area Networks (LAN).
- Administer both peer-to-peer networks and client/server networks.
- Assigns IP addresses according to TCP/IP protocols.
- Identify security threats and services that improve computer network security.
- Recognize the role and tasks of all seven layers of the ISO/OSI model.
- Use protocols of the TCP/IP protocol stack.
- Design, connect and enable local area networks through both wired cables and wireless links.
- Enable Internet communication of the designed computer network.
- Configure a Wi-Fi router and use it to connect mobile devices (laptops, tablets and telephones).

Course content

Theoretical instruction:

1. The basic concepts of data transmission.
2. Computer Networks. Network topologies. Logical and physical topologies. Transmission medium types. Examples (case studies).
3. Switching techniques. Types of switching (line, message and packet commutation). Packets, virtual circuits. Datagrams. Errors, detection and removal.
4. Standards.
5. LAN signaling techniques and network access. Types of coding.
6. Computer network components, passive and active components. Network interface cards. Repeaters, bridges, routers.
7. Designing computer networks. Topology selection, wiring – types and characteristics, structured wiring.
8. Complex computer networks. Introducing the concept of network areas. Peripheral areas of the network.
9. Network operating systems. Processor management. Memory management. Data management.
10. Security and types of security threats to computer networks.

Practical course work:

1. Configuration and administration of standalone computer; 2. Installing and creating virtual computers; 3. Installing and administering hardware. Relations between device drivers and hardware. Configuring audio/video systems and input devices; 4. Administering hard disk drives – partitioning and creation of file systems, diagnostics and optimization; 5. Creation and administration of local users and groups. Local profiles; 6. Software installation and administration (MS Office, antivirus programs); 7. Working in LAN; 8. Client side; 9. Server side; 10. Working on the Internet; 11. Networking and administration of combined networks (using commutator, router, cable, wireless).

Literature

1. Obradović, S., Maček, N., & Stanišević, I. (2010). *Računarske mreže*. Valjevo: VIPOS.
2. Petrović, Đ., Obradović, S., & Stanišević, I. (2010). *Računarske mreže – priručnik za vežbe*. Valjevo: VIPOS.
3. Tanenbaum, A. (2013). *Računarske mreže* (5. izdanje). Beograd: Mikro knjiga.
4. Kurose, Dž., & Ros, K. (2014). *Umrežavanje računara: od vrha ka dnu* (6. Izdanje). Beograd: CET.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures which outline theoretical principles and describe standards, computer laboratory exercises, discussions, defence of practical work.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	8	Written exam	30
Practical work	32	Oral exam	
Colloquia	30	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Data Analysis

Lecturer(s): Đorđe K. Petrović, Valentina Ž. Pavlović

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: Third year/6th semester

Course prerequisites: None

Course objectives

Students will understand the importance and the process of data analysis in the modern business environment. They will acquire knowledge and skills of using modern software in data analysis, learn how to prepare data for analysis and use descriptive and inferential statistics to analyze results and draw conclusions.

Course outcomes

Upon successful completion of the course, students will be able to:
- Edit, describe and display data in a spreadsheet program.
- Examine relationships between variables.
- Explain the use of statistical tests in a specific data analysis.
- Select appropriate techniques for developing and using formulas in data analysis.

Course content

Theoretical instruction:

1. Basic operations in a programming environment – SPSS (Statistical Package for Social Sciences)
2. Preparing data for analysis
3. Descriptive statistics
4. Exploratory data analysis - selected statistical procedures
5. Advanced techniques for creating and using formulas in a spreadsheet program
6. Working with lists
7. Derived tables (pivot tables)
8. "What-if" analysis/sensitivity analysis

Practical course work:

1. Basic spreadsheet operations (cell references, types of cell references, examples), creating and using charts/graphs.
2. Numeric functions, logical functions, lookup functions, reference functions and financial functions.
3. Working with internal databases (lists): sorting, filtering, creating subtotals, D-functions; Goal Seek Tool, Solver Tool.
4. SPSS: aggregating, sorting, filtering and merging data from different data files; Functions: arithmetic, statistical and logical functions, numeric functions, conversion functions, missing values function; Statistical procedures for comparing environments, procedures for testing relationships between variables.

Literature

1. Soldić-Aleksić, J. (2015). *Primenjena analiza podataka*. Beograd: Ekonomski fakultet.
2. Albright, S. C., Winston, W. L., & Zappe, C. J. (2009). *Data Analysis & Decision Making with Microsoft Excel*. South-Western Cengage Learning.
3. Gerber, S. B., & Finn, K. V. (2005). *Using SPSS for Windows, Data Analysis and Graphics*. Springer Science and Business Media, Inc.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures, practical work in computer laboratories, case analysis - presentation of techniques and results of data analysis.

Assessment (maximum number of points: 100)

Pre-exam obligations	**60** points	**Final exam**	**40** points
Active class participation	5	Written exam	40
Practical work	15	Oral exam	
Colloquia	2x20	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Data Processing

Lecturer(s): Đorđe K. Petrović, Branko R. Ćebić, Dejan M. Beljić, Ivan D. Pantelić

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: First year/2nd semester

Course prerequisites: None

Course objectives

Familiarizing students with modern concepts of data processing. Developing students' skills for using spreadsheets and databases.

Course outcomes

Upon successful completion of the course, students will be able to:
- Use spreadsheet programs and database management for data collection and storage.
- Manipulate and calculate data using built-in functions.
- Edit and format data into tables and diagrams/charts and prepare them for publishing/printing.
- Create a simple database, determine primary keys and establish relationships between tables, use the wizard to create data entry forms, edit and delete data, as well as group reports.
- Describe the basic features of cloud computing and illustrate its advantages.
- List and explain the basic stages of application development and use.

Course content

Theoretical instruction:

1. Spreadsheets – advanced techniques. Formatting. Charts and diagrams. Formulas and functions. Structuring data in tables. Increasing productivity of the program usage.
2. Using databases. The basic concepts of databases, advantages of using databases, database system. Introduction to Microsoft Access: basic tables, primary key, foreign key, relationships, indexes, SELECT queries, forms, reports.
3. Processing data on the Internet. Cloud computing. Creating, publishing and processing data on the web. Case analysis.
4. Application development and basic programming concepts.

Practical course work:

Exercises part 1. Spreadsheets – advanced techniques:
- Editing: working with data, review, protection, security.
- Data handling: sorting, filtering, linking, templates, charts.
- Functions: date and time functions, math functions, statistical functions, text functions, financial functions, lookup and reference functions, logical functions, nested functions.
- Analysis: PivotTables, formula auditing.
- Special tools, macros.

Exercises part 2. Using databases: basic tables, primary key, foreign key, relationships, indexes, SELECT queries, forms, reports, practical application of databases.
Exercises part 3. Processing data on the Internet: Online survey design and processing of collected data.
Exercises part 4. Selecting, customizing applications for specific tasks and purposes.

Literature

1. Perić, D., & Petrović, Đ. (2013). *Internet i obrada podataka*. Valjevo: VIPOS.
2. Obradović, S., Vujović, B., Vučinić, B., Pandurov, T., & Petković, V. (2011). *MS Access – Projektovanje baza podataka i aplikacija – MS ACCESS 2010*. Beograd: VIŠER.
3. Stevanović, V. (2012). *Korišćenje baza podataka*. Službeni glasnik.
4. Wolber, D. (2011). App Inventor. *O'Reilly Media, Inc*.

Number of teaching hours: 75				Other:
Lectures: 30	Practical classes: 45	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures combined with computer demonstrations and case study analyses; individual student exercises in computer laboratories and homework assignments.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Practical work - exercises and homework assignments	10	Written exam	30
Colloquia	2x30	Oral exam	
Seminar paper(s)		.....	

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Databases

Lecturer(s): Ilja B. Stanišević, Ivan D. Pantelić

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: Second year/3rd semester

Course prerequisites: None

Course objectives

The aim of the course is to develop students' skills: in determining and information modelling of real-world objects as well as establishing relationships between them, in establishing the correlation between the real-world model and a particular database based on the logical and conceptual data models, to use SQL query language and to design and implement menus, forms and reports.

Course outcomes

Upon successful completion of the course, students will be able to:
- Identify and establish relationships between real-world objects.
- Design and create a simple relational model (1-20 tables).
- Transform a relational database into a physical database using software tools.
- Administer database systems.
- Generate and use simple SQL queries to create reports.
- Use design tools to create data entry forms as well as database reports.

Course content

Theoretical instruction:

1. Basic concepts (data, entity, attributes, domain, files, etc.).
2. Real-world data modeling methods.
3. Relational databases (relational algebra, relational calculus, relational database design).
4. Properties of relational databases (relationships, attributes, keys, cardinality, uniqueness, etc.).
5. Database management software tools (MS SQL Server, MySQL and MS Access).
6. Basic elements of SQL query language, basic commands, application and examples.
7. Entity relationship modelling, modelling 1:1, 1:N and M:N relationships.
8. Document modelling, product component modeling.
9. Data integrity and types of integrity, formal and procedural integrity.
10. Database transactions: purpose, use, examples.

Practical course work:

1. Familiarizing with advantages, disadvantages and application of Database Management System (DBMS).
2. Creating tables, selecting attributes, data type and domain, uniqueness.
3. Choosing a primary key, creating a foreign key, establishing relationships between tables using Database Management System.
4. SQL query creation, view creation (View), SQL query binding.
5. Creating and using data entry forms; creating forms using multiple tables.
6. Design and implementation of database reports, individual reports, reports based on data from multiple sheets, aggregate data reports and grouped reports.

Literature

1. Obradović, S., Vujović, B., Vučinić, B., Pandurov, T., & Petković, V. (2011). *MS ACCESS – Projektovanje baza podataka i aplikacija – MS ACCESS 2010*. Beograd: VETŠ.
2. Riordan, R. M. (2006). *Projektovanje baza podataka*. Beograd: Mikro knjiga.
3. Atkinson, P., & Viera, R. (2013). *Microsoft SQL server 2012 programiranje*. Beograd: CET.
4. Molinaro, A. (2006). *SQL kuvar*. Beograd: Mikro knjiga.
5. Matju, M. (2008). *Access 2007: uputstvo koje vam nedostaje*. Beograd: Mikro knjiga.

Number of teaching hours: 75				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction: 15	Research work:	

Teaching methods

Theoretical lectures introducing and explaining theoretical concepts as well as presenting practical examples; computer laboratory exercises; task assignments and group projects (3-4 students per team); public defence of task assignments and projects.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	4	Written exam	30
Practical work	6	Oral exam	
Colloquia	30	.....	
Group project	30		

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Economics

Lecturer(s): Dragoslava S. Sredojević, Slobodan M. Ilić

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: First year/1st semester

Course prerequisites: None

Course objectives

Acquiring basic knowledge in macroeconomics and microeconomics. Familiarizing students with basic economic categories and market economy laws. Introduction to representative companies, consumers and consumer interactions, that is, the most important aggregates and their interrelationships in the use and distribution of gross domestic product. Acquiring the knowledge of how society manages its scarce resources for production of goods and services and enabling students to make good business decisions. Fostering critical thinking among students on a large number of open issues in macroeconomics and microeconomics.

Course outcomes

Upon successful completion of the course, students will be able to:
- Interpret the economic relationship between households, companies, the state and external environment.
- Independently use methods and techniques to evaluate the financial performance of a company.
- Detect the possible impact of macroeconomic aggregates on the state of the economy and business activities of companies.
- Examine the impact of the state on economic growth rate by fostering savings, investments and the advancement of technological knowledge.

Course content

Theoretical instruction:

1. Introduction to microeconomics
2. Enterprise and entrepreneurship
3. Company (production, cost, revenue, profit)
4. Efficiency and competitiveness of the company
5. Market types and structures
6. Macroeconomic aggregates
7. Open economy macroeconomics
8. Aggregate supply and aggregate demand
9. Consumption, savings and investments in the national economy
10. Unemployment and inflation
11. Economic growth and development
12. The economic functions of the state

Practical course work:

Tasks related to the ten principles of economics. Presentations, examples and discussions on opportunity costs. A case study and tasks related to market forces of supply and demand. A case study on elasticity of demand and supply. Tasks related to production costs. Discussion on the free market forces and the role of the state in limiting them. A case study on international differences in GDP and the quality of life. Tasks related to measuring the costs of living. Discussion on factors of economic growth. Tasks related to the basic tools of finance. Discussion on unemployment and inflation.

Literature

1. Mankiw, N. G., & Taylor, P. M. (2008). *Ekonomija, evropsko izdanje* (prevod). Beograd: Data Status.
2. Burda, M., & Viploš, Č. (2012). *Makroekonomija* (prevod). Beograd: Ekonomski fakultet.
3. Samuelson, P., & Northaus, W. (2009). *Ekonomija* (prevod). Zagreb: Mate.
4. Pindyck, R. S., & Rubinfeld, D. L. (2009). *Microeconomics*. Prentice-Hall.
5. Šolak, Z. (2006). *Mikroekonomija*. Novi Sad: IGT.

Number of teaching hours: 75				Other:
Lectures: 45	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures and practical classes, presentations of selected economic topics (individual and team presentations), discussions, case studies.

Assessment (maximum number of points: 100)

Pre-exam obligations	**60** points	**Final exam**	**40** points
Active class participation	10	Written exam	40
Practical work		Oral exam	
Colloquia	2x25	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Electronic Business

Lecturer(s): Slobodan I. Obradović, Valentina Ž. Pavlović

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: Second year/4th semester

Course prerequisites: None

Course objectives:
Students will understand the impact of information technology on business processes and operations. They will become familiar and acquire knowledge of electronic business models, data security in electronic business, electronic banking and electronic financial markets, integrated management systems (ERP systems, CRM, SCM), e-government, e-learning, as well as the concepts and tools of internet marketing and mobile business.

Course outcomes
Upon successful completion of the course, students will be able to:
- Identify electronic business goals and participants.
- Define cryptographic techniques used to implement security services.
- Use electronic payment models in modern business.
- Select and utilize the latest technological solutions in enterprise resource management.
- Apply information and communication technology in education and learning.

Course content
Theoretical instruction:
1. Key electronic business terms (electronic products and services, e-commerce distribution channels, e-commerce development stages).
2. Models of electronic business.
3. Electronic business technologies and challenges.
4. Cryptographic techniques in electronic business security.
5. Electronic payment systems.
6. Use of payment cards in e-business systems.
7. Electronic banking.
8. Electronic financial markets.
9. E-learning.
10. Electronic business in public administration (models, architecture of e-government system, e-government services, etc.).
11. Integrated Management Systems (ERP Systems, CRM – Customer Relationship Management, Supply Chain Management).
12. Electronic marketing (e-marketing techniques, data sources in e-marketing, etc.).
13. Internet marketing tools (blogs and banner ads, search engine optimization techniques).
14. Mobile business (mobile technologies in e-business, mobile commerce, applications, mobile marketing).

Practical course work:
Types of e-business – examples. E-store development, creation of product categories, product creation. Cryptographic methods – the use of encryption software, creating digital signature, electronic document signing, digital certificates, certification bodies. Simulation of electronic banking with the help of e-banking software. Simulation of trading in the electronic financial market – Forex (on-line tools). Distance learning tools, Moodle distance learning platform.
The analysis of existing e-government software solutions, the eGovernment Portal of the Republic of Serbia/Examples of working with smart cards used in e-government. The use of enterprise resource planning software and customer relationship management software. Creating and maintaining own blog using a blog service. Measuring and analyzing website performance (tracking website statistics – Google Analytics). Planning and implementation of campaigns and social media presence (Facebook, Twitter, YouTube, etc.). Creating and placing banner ads.

Literature

1. Radenković, B., & Despotović Zrakić, M. (2015). *Elektronsko poslovanje*. Beograd: FON.
2. Scott, D. M. (2007). *The New Rules of Marketing and PR*. John Wiley & Sons.
3. Vasković, V. (2007). *Sistemi plaćanja u elektronskom poslovanju*. Beograd: FON.
4. Holloman, C. (2012). *The Social Media MBA: Your Competitive Edge in Social Media Strategy Development and Delivery*. John Wiley & Sons, Ltd.
5. Kalakota, R., & Robinson, M. (2007). *E-Poslovanje*. Zagreb: MATE.
6. Chaffey, D. (2009). *E-Business and E-Commerce Management* (4th Edition). Prentice Hall.
7. Shah, M., & Clarke, S. (2009). *E-Banking Management: Issues, Solutions, and Strategies*. IGI Global.
8. Furht, B., & Escalante, A. (Eds.). (2010). *Handbook of Cloud Computing*. Springer publishing company.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods
Theoretical lectures, computer laboratory exercises, case studies, practical work – the use of e-business applications.

Assessment (maximum number of points: 100)			
Pre-exam obligations	**60** points	**Final exam**	**40** points
Active class participation	5	Written exam	
Practical work	15	Oral exam	40
Colloquia	2x20	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: English 1

Lecturer(s): Tatjana J. Dugošija

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: First year/1st semester

Course prerequisites: None

Course objectives

The aim of the course is to enable students to develop all language skills (reading, writing, speaking and listening) at A1/A2 level of the Common European Framework of Reference for Languages as well as to master simple grammar and language structures and general English vocabulary necessary for communication in simple everyday situations.

Course outcomes

Upon successful completion of the course, students will be able to:

- *Speaking*: communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar topics and activities; handle short social exchanges; produce brief everyday expressions in order to satisfy simple needs: personal details, daily routines, wants and needs, requests for information; use basic sentence patterns to talk about themselves and other people, what they do, places, possessions, etc.
- *Listening*: understand clear, standard speech related to areas of most immediate personal relevance and catch the main point in short, clear, simple messages and announcements.
- *Reading*: read and understand short, simple texts containing high frequency vocabulary; find specific information in simple written everyday material such as emails, notices, advertisements, brochures, menus, and timetables.
- *Writing*: write short, simple notes and messages relating to matters in areas of immediate need, linking a series of simple phrases and sentences with simple connectors such as "and", "but" and "because"; write a simple personal letter or email.

Course content

Theoretical instruction:

1. Topics and related vocabulary: Talking about people and places. Jobs. Daily life and free time activities. My home. Giving directions. Holidays. Shopping. Education. Family and friends. Describing people. Plans for the future. Good and bad experiences. Travel. In a restaurant.
2. Grammar: Tenses (present simple, past simple, present continuous, present perfect simple); adverbs of frequency; indefinite and definite article; pronouns (personal, object, possessive, demonstrative); possessive adjectives; prepositions of place and time; comparatives and superlatives; expressing ability (can/can't); asking for and giving permission (can/could); expressing obligation and absence of obligation (have to/not have to); giving advice (should/shouldn't); expressing future plans (be going to +verb); expressing wants and wishes (would like to); passive – present simple and past simple; adverbs of manner.

Practical course work:

1. Practicing the use of grammatical structures, vocabulary and language functions in all language skills (speaking, listening, reading and writing) at A1/A2 level of the Common European Framework of Reference for Languages.
2. Practicing communication in everyday situations: introducing oneself and others, asking and answering questions about one's family and friends, making arrangements, asking for and giving directions, shopping, asking and answering questions about one's studies and courses, making suggestions, asking for and giving permissions, giving advice, buying tickets, ordering food and drinks in a restaurant.
3. Writing simple emails.

Literature

1. Dellar, H., & Walkley, A. (2017). *Outcomes Elementary Student's Book* (2nd Edition). National Geographic Learning, Cengage Learning.
2. Maggs, P., & Smith, C. (2017). *Outcomes Elementary Workbook* (2nd Edition). National Geographic Learning, Cengage Learning.

Number of teaching hours: 75				Other:
Lectures: 45	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Active participation of students in lectures and practical classes, communicative approach to learning a foreign language, pair and group work, homework assignments, simulations, role-plays, application of information technology in teaching and learning (Moodle learning platform for homework assignments).

Assessment (maximum number of points: 100)

Pre-exam obligations	**60** points	**Final exam**	**40** points
Active class participation	10	Written exam	40
Practical work		Oral exam	
Colloquia	2x25	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: English for Information Technology 2

Lecturer(s): Tatjana J. Dugošija

Course status: Compulsory

Number of ECTS credits: 4

Year of study/semester: Second year/4th semester

Course prerequisites: None

Course objectives

Enabling students to further develop all language skills (reading, writing, speaking and listening) at A2/B1.1 level of the Common European Framework of Reference for Languages through revision and extension of students' knowledge of grammatical structures, vocabulary and language functions. Expanding both general business English vocabulary and profession-specific terminology in the field of information technology required for communication in everyday business situations.

Course outcomes

Upon successful completion of the course, students will be able to:

- *Listening/Speaking*: use technical and IT-related vocabulary; exchange information with colleagues and customers/clients, express opinions in simple terms on familiar topics and state simple requirements within their filed of work; understand short spoken production on IT-related topics; make brief presentations on IT-related topics; engage in limited conversations with native and non-native English speakers in business context; manage simple phone calls (leave a message, take and pass on a message, complain, etc.); engage in simple conversations when on business trips abroad.
- *Reading*: read and understand routine, standard correspondence on familiar topics relating to their field of work, short reports on familiar matters, simple product/procedure description and advertisements within their own work area, and simple authentic texts on IT-related topics.
- *Writing*: write simple business emails and letters giving basic information or making simple requests; note down simple instructions or requests from clients; write simple product/procedure descriptions and advertisements; write short presentations on IT-related topics.

Course content

Theoretical instruction:

1. Topics and related vocabulary: Companies and their activities. Departments in a company. Describing jobs. Telephone calls. Product development. Product description. Computers today. Computer essentials. Choosing and buying the right computer. Input and output devices. Storage devices. Employment. Placing orders. Complaining and dealing with complaints. Business trips.
2. Grammar: Tenses (present simple, present continuous, past simple, past continuous, present perfect simple, expressing future – will+infinitive, be going to+infinitive, present simple, present continuous for future arrangements); zero and first conditional; countable and uncountable nouns; a lot of, much/many, some/any; comparison of adjectives; adverbs of frequency; adverbs of place, manner and time; adjectives ending in -ed/-ing.
3. Business correspondence: writing simple business emails and letters.

Practical course work:

1. Practising the use of grammatical structures, vocabulary and language functions in all language skills.
2. Practising communication in everyday business situations: introducing oneself at a conference; making polite requests; describing jobs and responsibilities at work; making and receiving telephone calls at work (leaving, taking and passing on messages, booking hotel accommodation/plane tickets, making and responding to complaints); describing products; discussing progress; asking for and giving opinions, agreeing/disagreeing/giving arguments; checking in at the airport/a hotel/a company reception; reading and analyzing simple texts in the field of information technology.
3. Writing simple business emails and letters.

Literature

1. Esteras, S. R. (2010). *Infotech – English for Computer Users* (4th Edition). Cambridge: Cambridge University Press.
2. Glendinning, E. H., & McEwan, J. (2002). *Basic English for Computing*. Oxford: Oxford University Press.
3. Grant, D., Hudson, J., & McLarty, R. (2012). *Business Result Pre-Intermediate Student's Book*. Oxford: Oxford University Press.
4. Murphy, R. (2004). *English Grammar in Use* (3rd Edition). Cambridge: Cambridge University Press.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Active participation of students in lectures and practical classes, communicative approach to learning foreign languages, pair and group work, simulations, role-plays, the use of Internet and application of information technology in teaching and learning (Moodle learning platform).

Assessment (maximum number of points: 100)

Pre-exam obligations	**60** points	**Final exam**	**40** points
Active class participation	10	Written exam	40

Practical work		Oral exam	
Colloquia	2x25	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: English for Information Technology 3

Lecturer(s): Tatjana J. Dugošija

Course status: Compulsory

Number of ECTS credits: 4

Year of study/semester: Third year/6th semester

Course prerequisites: None

Course objectives

Further development of all language skills (reading, listening, writing and speaking) at B1 level of the Common European Framework of Reference for Languages. Expanding both general business English vocabulary and profession-specific terminology in the field of information technology and enabling students to communicate effectively in various real-life and business situations. Developing students' business writing skills. Acquiring more complex profession-specific terminology used in the field of information technology and enabling students to interpret authentic texts and articles in the field of information technology.

Course outcomes

Upon successful completion of the course, students will be able to:

- *Listening/Speaking*: use more complex technical and IT-related vocabulary; exchange factual information with colleagues and customers/clients; express opinion, give arguments and present ideas on solving IT-related problems; give instructions for using different programs, software and applications; leave and take more complex messages; participate in meetings and discussions on IT-related topics; understand and deliver more complex presentations on IT-related topics; socialize with native and non-native speakers without making errors that might lead to misunderstandings.
- *Reading*: read and understand more complex correspondence, business reports and instructions in a form of a continuous text; identify a general idea and specific information in authentic texts and articles in their field of information technology; summarize selected authentic texts and articles in the field of information technology.
- *Writing*: write different types of business letters/emails (making reservations, placing orders, replying to orders, complaints); produce invoice using a spreadsheet program; write a CV and a cover letter.

Course content

Theoretical instruction:

1. Topics and related vocabulary: Basic software (operating systems, word processing, spreadsheets and databases). The Internet and email. Chat and conferencing. Internet security. Sales and advertising. Presentations. Business meetings. Company performance. Describing trends. Careers and jobs in ITC.
2. Grammar: Revision of tenses; modals verbs (obligation, absence of obligation, permission, prohibition, advice); the passive voice; conditionals; present perfect simple and continuous; expressing future.
3. Writing: different types of business letters/emails (making reservations, placing orders, replying to orders, complaints); producing invoice using a spreadsheet program; a CV and a cover letter.

Practical course work:

1. Practising the use of grammatical structures, vocabulary and language functions in all language skills.
2. Practising communication: asking questions about and describing features of operating systems, different software and applications; taking part in meetings and discussions on IT-related topics; giving formal presentations on IT-related topics/issues using presentation software; invitations and offers; describing trends and visual data (tables, charts and diagrams).
3. Writing different types of business letters/emails, CVs and cover letters; producing invoice using a spreadsheet program.
4. Reading and summarizing selected authentic texts and articles in the field of information technology.

Literature

1. Esteras, S. R. (2010). *Infotech – English for Computer Users* (4th Edition). Cambridge: Cambridge University Press.
2. Grant, D., Hudson, J., & McLarty, R. (2012). *Business Result Pre-Intermediate Student's Book*. Oxford: Oxford University Press.
3. Hughes, J., & Naunton, J. (2016). *Business Result Intermediate Student's Book with Online Practice* (2nd Edition). Oxford: Oxford University Press.
4. Murphy, R. (2004). *English Grammar in Use* (3rd Edition). Cambridge: Cambridge University Press.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Active participation of students in lectures and practical classes, communicative approach to learning a foreign language, pair and group work, simulations, role-plays, presentations, case studies, discussions, the use of Internet and application of information technology in teaching and learning (using presentation software and Moodle learning platform).

Assessment (maximum number of points: 100)

Pre-exam obligations	**60** points	**Final exam**	**40** points

Active class participation	10	Written exam	
Practical work		Oral exam	40
Colloquia	2x25	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Entrepreneurship

Lecturer(s): Snežana P. Rakić

Course status: Elective

Number of ECTS credits: 7

Year of study/semester: Third year/5th semester

Course prerequisites: None

Course objectives

Providing knowledge and develop skills in the field of entrepreneurship and starting own business. Presenting personal characteristics and necessary business skills of entrepreneurs. Familiarizing students with the characteristics of the modern global business environment. Familiarizing students with the legal requirements for starting a business.
Acquiring the skills needed to develop a business plan. Familiarizing students with the institutional framework and support for entrepreneurship development in Serbia.

Course outcomes

Upon successful completion of the course, students will be able to:
- Recognize and define the characteristics of successful entrepreneurs.
- Analyze the characteristics of the modern global business environment and its impact on entrepreneurial activity.
- Identify the key factors in the analysis of business ideas.
- Consider and choose the most appropriate form of starting an entrepreneurial venture.
- Differentiate various sources of financing business ideas.
- Evaluate the effectiveness of different business strategies and choose the optimal one.
- Develop a business plan for their own business idea.
- Select the most appropriate organizational form for starting an entrepreneurial venture and running the business.

Course content

Theoretical instruction:

Characteristics of the modern business environment. The concept of entrepreneurship. The profile of an entrepreneur, the analysis of personal characteristics and business skills. Entrepreneurial idea and opportunity analysis. Innovation and entrepreneurship. Entrepreneurial strategies. Business plan. Legislative support for entrepreneurship. Institutional framework and support for entrepreneurship development in Serbia.

Practical course work:

1. Thematic discussions – Chapter 3 (The profile of an entrepreneur) – Harper's test of entrepreneurial characteristics, personality test, motivation.
2. Case analyses – Chapter 3 (Personal profile of a successful entrepreneur – practical examples); Chapter 4 (the analysis of external sources of financing based on a list of selected companies); Chapter 6 (creating an entrepreneurial strategy based on examples from the practice of selected companies); Chapter 7 (developing a business plan based on examples from the practice of selected companies).
3. Entrepreneurial workshops on how to develop a business idea, how to develop a business plan, on modern business tools, etc.
4. Guest lectures delivered by successful local entrepreneurs, local government representatives in charge of local and economic development, and organizations and associations which promote entrepreneurship and support its development.
5. Visits to selected companies and entrepreneurship fairs in Valjevo and Belgrade.

Literature

1. Jokić, D., Rakić, S., & Mikić, A. (2013). *Preduzetništvo*. Valjevo: VIPOS.
2. Deakins, D. (2012). *Preduzetništvo malih firmi*. Beograd: Data Status.
3. Hisrich, R., Peters, M., & Shepherd, D. (2013). *Entrepreneurship*. McGraw-Hill.
4. Paunović, B., & Zipovski, D. (2013). *Poslovni plan: vodič za izradu*. Beograd: Centar za izdavačku delatnost.
5. Avlijaš, R., & Avlijaš, G. (2013). *Preduzetništvo*. Beograd: Univerzitet Singidunum.
6. Paunović, B. (2012). *Preduzetništvo i upravljanje nalim i srednjim preduzećima*. Beograd: Ekonomski fakultet.

Number of teaching hours: 75				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction: 15	Research work:	

Teaching methods: Theoretical lectures combined with interactive teaching methods, presentation of examples from the practice of companies, creative workshops, software application in solving practical tasks, preparation and presentation of seminar papers.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	10	Written exam	30
Practical work		Oral exam	
Colloquia	2x20	.....	
Seminar paper(s)	20		

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Final Project in Applied Informatics

Lecturer(s): Slobodan I. Obradović, Đorđe K. Petrović

Course status: Elective

Number of ECTS credits: 7

Year of study/semester: Third year/6th semester

Course prerequisites: None

Course objectives

The main aim is to enable students to solve practical problems related to the application of information technology in companies and institutions.

Course outcomes

Upon successful completion of the course, students will be able to:
- Identify real business problems related to the application of information technology in companies/institutions.
- Collect relevant information, analyze the collected data and propose solutions to the identified business problem.
- Create the solution proposal.
- Present and defend their solution proposal/project.

Course content

Theoretical instruction:

1. Defining the scope, objectives and expected results of the project assignment
2. Defining project stages and activities at each stage
3. Selection of the appropriate methodology for collecting information
4. Processing of collected information; the analysis of obtained results and project presentation

Practical course work:

1. Identifying a practical problem in the company/institution or the possibility for improving the business process
2. Collecting the necessary information/data
3. Analysis of the collected data/information and consultations with the mentor
4. Formulation of initial solution proposal and consultations with the mentor
5. Preparation of the initial report on the problem solution and consultations with the mentor
6. Preparation of the final project report
7. Preparation of the project presentation
8. Project defence

Literature

1. Jovanović, P. (2010). *Upravljanje projektima*. Beograd: Zuhra.
2. Nouks, S. (2005). *Upravljanje projektima*. Beograd: Clio.
3. General acts of the company/institution in which the project is carried out
4. Regulations and standards governing business operations of the company/institution for which the project proposal is prepared

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 15	Other forms of instruction: 15	Research work:	

Teaching methods

Lectures combined with case study analyses; visits to the company/institution for which the project proposal is created; project preparation; preparation of the final project report; project defence.

Assessment (maximum number of points: 100)

Pre-exam obligations	**50** points	**Final exam**	**50** points
Active class participation	10	Written exam	
Final report	40	Oral exam – project defence	50
Colloquia		.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Final Project in Programming

Lecturer(s): Ilja B. Stanišević, Jelica Ž. Protić

Course status: Elective

Number of ECTS credits: 7

Year of study/semester: Third year/6th semester

Course prerequisites: None

Course objectives

The main aim is to enable students to apply programming skills in solving practical problems related to the application of information technology in companies and institutions.

Course outcomes

Upon successful completion of the course, students will be able to:
- Identify real business problems related to the application of information technology in companies/institutions.
- Collect relevant information, analyze the collected data and suggest how to solve the identified business problem or problems by applying their knowledge and skills in programming.
- Create the solution proposal.
- Present and defend their solution proposal/project.

Course content

Theoretical instruction:

1. Defining the scope, objectives and expected results of the project assignment
2. Defining project stages and activities at each stage
3. Selection of an appropriate methodology for collecting information
4. Processing of collected information; the analysis of obtained results and project presentation

Practical course work:

1. Identifying a practical problem in the company/institution or the possibility for improving the business process
2. Collecting the necessary information/data
3. Analysis of the collected data/information and consultations with the mentor
4. Formulation of initial solution proposal and consultations with the mentor
5. Preparation of the initial report on the problem solution and consultations with the mentor
6. Preparation of the final project report
7. Preparation of the project presentation
8. Project defence

Literature

1. Jovanović, P. (2010). *Upravljanje projektima*. Beograd: Zuhra.
2. Nouks, S. (2005). *Upravljanje projektima*. Beograd: Clio.
3. General acts of the company/institution in which the project is carried out
4. Regulations and standards governing business operations of the company/institution for which the project proposal is prepared

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 15	Other forms of instruction: 15	Research work:	

Teaching methods

Lectures combined with case study analyses; visits to the company/institution for which the project proposal is created; project preparation; preparation of the final project report; project defence.

Assessment (maximum number of points: 100)

Pre-exam obligations	**50** points	**Final exam**	**50** points
Active class participation	10	Written exam	
Final report	40	Oral exam – project defence	50
Colloquia		.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Financial Markets

Lecturer(s): Slobodan M. Ilić

Course status: Elective

Number of ECTS credits: 7

Year of study/semester: Third year/6th semester

Course prerequisites: None

Course objectives

Acquiring the knowledge of different segments of the financial market and their functioning. Acquiring the knowledge of different financial instruments and financial market participants. Familiarizing students with trading mechanisms in order to perform various financial operations**.** Fostering critical thinking a on a large number of open issues regarding financial markets.

Course outcomes

Upon successful completion of the course, students will be able to:
- Explain the role and relationship of financial markets and institutions.
- Trade in certain segments of the financial market.
- Make an optimal choice of financial instruments in order to perform various financial transactions.
- Evaluate different investment alternatives.
- Perform stock exchange operations.
- Evaluate the situation in certain financial markets, identify relevant signals of possible changes and evaluate future trends in financial markets.

Course content

Theoretical instruction:

1. The concept, types and importance of financial markets
2. Financial markets operations
3. Institutional framework for the of financial market functioning
4. Financial market instruments
5. Financial market participants
6. Stock exchange operations and over-the-counter (OTC) operations
7. Financial market crises and their solutions

Practical course work:

1. Preparation and presentation of seminar papers (on financial market instruments, financial market participants, stock exchange operations and over-the-counter operations) and follow-up discussions.
2. Calculation of costs of different types of financial instruments.
3. Guest lectures delivered by prominent experts in the field of financial markets (lectures on financial market instruments, financial market participants, stock exchange operations and over-the-counter operations).
4. Visits to financial institutions and organizations (Belgrade Stock Exchange, the National Bank of Serbia, banks) and regulatory authorities (Securities Commission).
5. Case study analysis.
6. Project work.

Literature

1. Erić, D. (2007). *Finansijska tržišta i instrumenti*. Beograd: Čigoja štampa.
2. Jeremić, Z. (2003). *Finansijska tržišta*. Beograd: Fakultet za finansijski menadžment i osiguranje.
3. Law on the Capital Market; Law on Banks; Law on the National Bank of Serbia; Individual Income Tax Law; Corporate Income Tax Law.
4. Biznis i finansije (journal).

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures, case study analysis, exercises, problem solving, discussions. Students are encouraged to present their own understanding of particular topics and issues and present their own analytical results.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	5	Written exam	30
Practical work	5	Oral exam	
Colloquia	2x20	.....	
Seminar paper(s)	20		

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Information Systems Design

Lecturer(s): Ilja B. Stanišević, Ivan D. Pantelić

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: Third year/5th semester

Course prerequisites: None

Course objectives

The objective of the course is to familiarize students with the types and characteristics of modern business information systems (IS). The students will also acquire knowledge of the basic characteristics of methods of information analysis and design of business information systems, both traditional and agile, and all stages of the information system development life cycle.

Course outcomes

Upon successful completion of the course, students will be able to:
- Identify appropriate information system types depending on the levels of decision making.
- Distinguish between information systems and functional parts of organizational entities.
- Describe business processes, structures and rules using the universal Unified Modeling Language (UML).
- Conduct an information analysis of a business entity using the Zachman Framework.
- Recognize the stages of the information system development life cycle.
- Recognize and explain the advantages and disadvantages of the most popular traditional (cascade, RUP, MSF, spiral) and agile (XP, Scrum, RAD, FDD) information system development methods.
- Critically evaluate the existing information systems and proposes improvements based on previously acquired IT knowledge.

Course content

Theoretical instruction:

1. Basic concepts (definition of information systems, the role, significance, structure and architecture of information systems, types of information systems).
2. Life cycle models of information system development, cascade development methods, incremental-iterative methods, and agile information system development methods.
3. Structured systems analysis, systems analysis techniques and tools, CASE tools.
4. Metamodels: Unified Modelling Language (UML), Zachman Framework, process maturity model (CMM).
5. Types of business information systems, transaction systems, reporting systems, decision support systems (DSS), group decision support systems (GDSS), OLAM and OLTP systems, special-purpose business information systems.
6. Knowledge management, expert systems, artificial intelligence, management support systems.
7. Decision making with regard to the procurement and development of business information systems, planning, consideration of needs and opportunities, selection of suppliers, quality standards, maintenance and exploitation of information system, data protection, system modification.

Practical course work:

1. Modeling processes and entities by using UML and adequate software tools.
2. Designing special-purpose business information systems by integrating IT skills acquired in Programming, Web Design and Databases courses.
3. Developing team projects on design and implementation of simple business information systems.
4. Seminar papers on given topics.

Literature

1. Rainer, K., & Turban, E. (2009). *Uvog u informacione sisteme*. Beograd: Data Status.
2. Buh, G., Rambo, Dž., & Džakobson, A. (2002). *UML vodič za korisnike*. Beograd: CET.
3. Huber, M. W., Norrie, J., Piercy, C. A., & McKeown, P. G. (2010). *Introduction to Business Information Systems*. John Wiley & Sons.
4. Fleger, Š. L., & Atli, J. M. (2006). *Softversko inženjerstvo, teorija i praksa* (3. izdanje). Beograd: CET.

Number of teaching hours: 75				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction: 15	Research work:	

Teaching methods: Theoretical lectures introduce theoretical concepts but also provide an insight into practical examples; the practical part of the course includes exercises in computer laboratories, working with software tools for the analysis and design of information systems, and team development of assigned projects that simulate situations in the real business environment.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	8	Written exam	30
Practical work	32	Oral exam	
Colloquia	30	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Information Systems Security

Lecturer(s): Andrija D. Tošić

Course status: Elective

Number of ECTS credits: 7

Year of study/semester: Second year/4th semester

Course prerequisites: None

Course objectives

Familiarizing students with the vulnerability of information systems and the need for their protection, as well as important security issues. Providing knowledge of the sources of information systems threats and methods and techniques of their protection.

Course outcomes

Upon successful completion of the course, students will be able to:
- Explain security concepts related to information and data security, physical security, privacy and identity theft.
- Protect computers, devices or networks from malware and unauthorized access.
- Safely use computer networks, network connections and access control services.
- Safely browse the web and communicate using the Internet (e-mail, instant messaging).
- Manage information securely (create data backups and securely destroy data).

Course content

Theoretical instruction:

1. Security concepts: data; the importance of information; personal security; file security.
2. Malware: definition and function; types; protection.
3. Network security: networks; connecting to the network; wireless network security; access control.
4. Safe Internet use: web browsing; social networks.
5. Communication: e-mail (electronic messages); instant messaging.
6. Cryptography.
7. Data security management: data security and backup; permanent data destruction.
8. Organizational and physical security measures

Practical course work:

1. User accounts, rights, privileges and user restrictions.
2. Creating data backup.
3. Computer virus protection (installing, setting up and using antivirus programs).
4. Working with data encryption software.
5. Firewall (installing, setting up and using a firewall).
6. Internet security.

Literature

1. Bishop, M. (2015). *Computer Security Art and Science*. Pearson Education.
2. Mitnik, K. (2011). *Umetnost obmane*. Beograd: Mikro knjiga.
3. Milosavljević, M., & Grubor, G. (2010). *Osnovi zaštite informacija*. Beograd: Univerzitet Singidunum.
4. Pleskonjić, D., Maček. B., Đorđević, B., & Carić, M. (2007). *Sigurnost računarskih sistema i mreža*. Beograd: Mikro knjiga.
5. Kukrika, M. (2002). *Upravljanje sigurnošću informacija – Zaštita informacionih sistema prema standard*u ISO 17799. Beograd: INFOHome.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures, practical classes, exercises, practical work in computer laboratories, case studies.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	10	Written exam	30
Practical work	30	Oral exam	
Colloquia	30	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: International Business

Lecturer(s): Dragoslava S. Sredojević

Course status: Elective

Number of ECTS credits: 7

Year of study/semester: Third year/6th semester

Course prerequisites: None

Course objectives

Familiarizing students with the modern global business environment. Providing students with the knowledge of principles, strategies and tactics necessary for companies to operate in the global business environment. Familiarizing students with the strategies for entering, positioning and survival of companies in global markets. Acquiring practical skills through analyzing and solving selected case studies.

Course outcomes

Upon successful completion of the course, students will be able to:
- Evaluate different forms of business operations and international marketing instruments.
- Select the methods of entering the global market in accordance with the company's capacities and characteristics of the business environment.
- Make decisions in specific business situations.
- Effectively communicate and participate in teamwork.

Course content

Theoretical instruction:

1. Definition, development and importance of international business
2. Effects of globalization and internationalization of business
3. Dimensions of international business environment
4. Foreign market segmentation and international market targeting
5. Forms of international business, different approaches when choosing a form of doing business in a foreign market
6. Management and accounting issues affecting international business
7. Financial and commercial issues affecting of international business
8. International marketing tools and internationalization of business

Practical course work:

1. Case studies on foreign market segmentation
2. Case studies on the social responsibility of foreign companies in the host country
3. Case studies on export business, various forms of countertrade, contractual cooperation, international joint ventures, foreign direct investments
4. Presentations of students' seminar papers related to the cultural dimensions of international business
5. Visits to companies involved in international business

Literature

1. Sredojević, D., Stojadinović-Jovanović, S., & Vasiljević, M. (2009). *Međunarodni biznis*. Valjevo: VIPOS.
2. Kozomara, J. (2013). *Osnovi međunarodnog poslovanja – složeni oblici*. Beograd: Ekonomski fakultet.
3. Rakita, B. (2012). *Međunarodni marketing*. Beograd: Ekonomski fakultet.
4. Kozomara, J., & Stojadinović-Jovanović, S. (2011). *Međunarodno poslovno finansiranje*. Beograd: Ekonomski fakultet.
5. Gregori, P. R., & Stjuart, R. S. (2015). *Globalna ekonomija i njeni ekonomski sistemi*. Beograd: Ekonomski fakultet.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

An integrated teaching model will be adopted by combining lecturing with group discussions, individual assignments, case analysis and presentations.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	15	Written exam	30
Practical work		Oral exam	
Colloquia	2x20	.....	
Seminar paper(s)	15		

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Internet Law

Lecturer(s): Slobodan Z. Nenadović

Course status: Elective

Number of ECTS credits: 7

Year of study/semester: Third year/5th semester

Course prerequisites: None

Course objectives

The objective of the course is to familiarize students with the application of the basic legal institutes of obligation law, business law, criminal law and intellectual property law in the field of electronic business and to enable them to conduct various legal transactions using the means of electronic communication.

Course outcomes

Upon successful completion of the course, students will be able to:
- Distinguish among various types of electronic contracts.
- Conclude valid contracts and other legal transactions in electronic form.
- Select suitable legal forms of data protection, protection of computer programs and databases.
- Identify various manifestations of computer crime.
- Recommend immediate data protection measures, particularly those relating to the protection of privacy rights.

Course content

Theoretical instruction:

1. Legal protection of personal data
2. Legal protection of databases
3. Legal protection of integrated circuit topographies
4. Legal protection of computer programs and software
5. Computer crime
6. Special computer crimes
7. Legal prerequisites for e-commerce development
8. Electronic contracts
9. Legal admissibility and regulations governing the conclusion of electronic contracts
10. Electronic securities
11. E-economy and e-commerce
12. Electronic payment
13. Electronic signature and qualified electronic signature

Practical course work:

1. Conclusion of electronic sales contracts
2. Electronic letter of credit
3. Case study: online auction, legal aspects
4. Computer crime in the practice of Serbian courts
5. The use of electronic securities

Literature

1. Nenadović, S. (2011). *Osnovi kompjuterskog prava*. Valjevo: VIPOS.
2. Besarović, V. (2011). *Intelektualna svojina*. Beograd: Pravni fakultet Univerziteta u Beogradu.
3. Legal regulations in the relevant fields

Number of teaching hours: 60				Other:
Lectures: 45	Practical classes: 0	Other forms of instruction: 15	Research work:	

Teaching methods

Theoretical lectures, practical classes, exercises, group work, presentations, discussions regarding presentations and examples from professional and other journals and magazines which are related to the subject matter of the course.

Assessment (maximum number of points: 100)

Pre-exam obligations	**40** points	**Final exam**	**60** points
Active class participation	10	Written exam	
Practical work		Oral exam	60
Colloquia	2x15	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Introduction to Informatics

Lecturer(s): Andrija D. Tošič, Branko R. Ćebić, Dejan M. Beljić

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: First year/1st semester

Course prerequisites: None

Course objectives

The main aim of the course is to provide theoretical knowledge and develop students' basic computer skills (word processing applications, the use of the Internet, creating presentations) and enable them to use computer skills in their future workplace.

Course outcomes

Upon successful completion of the course, students will be able to:

- Explain the basic principles of information and communication technologies and distinguish between computer components and their functions.
- Manage and store documents.
- Design and print complex documents and use circulars in business correspondence.
- Use electronic mail in business communication and search for information on the Internet.
- Create and format presentations.

Course content

Theoretical instruction:

1. The basics of using computers:

Computers and devices. Desktop environment. Printing. File management. The use of computer networks. Safety.

2. Word processing, advanced techniques:

Text formatting. In-text referencing. Increasing productivity in word processing. Document collaboration. Preparing files for print.

3. The use of the Internet:

Basic Internet terms. Internet security. Web browsers. Electronic mail. Social networking systems. Internet communication. Internet search. Other Internet services.

4. Presentations, advanced techniques:

Planning presentations. Master slides and templates. Graphic objects. Charts and diagrams. Multimedia. Productivity improvement. Presentation management.

Practical course work:

Computer laboratory exercises (group and individual) – organizing computer files, word processing and text formatting, creating and formatting presentations.

Literature

1. Lambert, J. & Lambert, S. (2016). *Windows 10 Korak po korak*. Beograd: CET.
2. Soper, M. E. (2016). *Windows 10 Kao od šale*. Beograd: Mikro knjiga.
3. Rutledge, P. A. (2016). *Office 2016 Kao od šale*, Beograd: Mikro knjiga.
4. Munnelly, B. & Holden, P. (2005). *ECDL*. Beograd: Mikro knjiga.

Number of teaching hours: 90				Other:
Lectures: 45	Practical classes: 45	Other forms of instruction:	Research work:	

Teaching methods

Lectures, computer laboratory exercises, individual assignments.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Computer lab classes	10	Written exam	30
Practical work		Oral exam	
Colloquia	2x30	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Management

Lecturer(s): Branko Ž. Matić

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: First year/2nd semester

Course prerequisites: None

Course objectives

Familiarizing students with management as the basic function of a modern company. Acquiring the knowledge of management processes and the manner of their organization and functioning. Mastering the basic management techniques and methods.

Course outcomes

Upon successful completion of the course, students will be able to:
- Explain the importance and role of management in a company.
- Independently organize management processes at the operative and middle level.
- Autonomously observe and keep informed about the development of management theory and practice trends.
- Apply management methods, techniques and software.

Course content

Theoretical instruction:

1. Basic aspects of business and management
2. The concept and scope of management
3. Management development
4. The planning process
5. The process of organizing
6. The leadership process
7. The controlling process

Practical course work:

1. Case studies of specific companies and successful managers
2. Contributions of management theorists
3. Plans and SWOT analysis development
4. Organizational scheme development
5. Job classification scheme development
6. Motivation methods
7. Documentation of the quality management system

Literature

1. Matić, B. (2012). *Menadžment*. Valjevo: VIPOS.
2. Matić, B. (2013). *Menadžment praktikum*. Valjevo: VIPOS.
3. Mašić, B., et al. (2014). *Savremena teorija menadžmenta – škole i novi pristupi*. Beograd: Data status.
4. Chuck, W. (2010). *Principi menadžmenta*. Beograd: Data status.
5. Boddy, D. (2008). *Management: An introduction*. Prentice Hall.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures and interactive teaching methods, practical examples, assignments, case studies, presentations and defense of seminar papers through discussions.

Assessment (maximum number of points: 100)

Pre-exam obligations	**60** points	**Final exam**	**40** points
Active class participation	3	Written exam	
Practical work	10	Oral exam	40
Colloquia	2x20	.....	
Seminar paper(s)	7		

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Marketing

Lecturer(s): Mlađen Ž. Vićentić, Ivana M. Marković

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: First year/1st semester

Course prerequisites: None

Course objectives

The objective of the course is to provide students with thorough knowledge of basic marketing principles and enable them to acquire the marketing mindset when making business decisions. Therefore, it is necessary to familiarize students with the fundamental aspects of observing and defining marketing, with a particular emphasis on market research activity as the most important function of marketing. It will analyze all marketing mix instruments and develop students' analytical, critical and creative thinking skills through the analysis of practical examples in order to make the right marketing decision.

Course outcomes

Upon successful completion of the course, students will be able to:
- Define, organize, implement and use the results of market research, independently or in teams.
- Define an optimal offer based on market research and analysis.
- Successfully plan marketing strategies for particular companies.
- Conduct marketing activities in the company.

Course content

Theoretical instruction:

1. Definition of marketing
2. Creating value for customers and customer satisfaction
3. Customer loyalty research
4. Marketing management in a company
5. Marketing information system
6. Market research
7. Market analysis
8. Market segmentation and market positioning
9. Marketing mix instruments
10. Marketing organization models

Practical course work:

1. Developing a marketing concept for a specific business entity or not-for-profit organization
2. Simulation of the market research process
3. Planning a new product
4. Designing and creating a specific promotional campaign
5. Implementation of an appropriate marketing strategy

Literature

1. Vićentić, M., & Mijailović, I. (2011). *Marketing*. Valjevo: VIPOS.
2. Vićentić, M. (2008). *Marketing*. Valjevo: VIPOS.
3. Milisavljević, M., Maričić, B., & Gligorijević, M. (2009). *Osnovi marketinga*. Beograd: Ekonomski fakultet
4. Hanić, H. (2007). *Principi marketinga*. Beograd: Beogradska bankarska akademija.
5. Jobber, D., & Fahy, J. (2006). *Osnovi marketinga*. Beograd: Data status.
6. Kotler, F. (2001). *Upravljanje marketingom*. Zagreb: Mate.
7. Časopis Marketing. Beograd: Publisher.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures, case studies, role-plays, quizzes, debates, preparation of seminar papers, presentations, guest lecturers.

Assessment (maximum number of points: 100)

Pre-exam obligations	**60** points	**Final exam**	**40** points
Active class participation	5	Written exam	
Case studies	15	Oral exam	40
Colloquia	40	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Professional Practice 1

Lecturer(s): Valentina Ž. Pavlović, Ilja B. Stanišević, Andrija D. Tošić, Đorđe K. Petrović, Dejan M. Beljić, Branko R. Ćebić, Ivan D. Pantelić

Course status: Compulsory

Number of ECTS credits: 4

Year of study/semester: First year/2nd semester

Course prerequisites: None

Course objectives

The main aim of Professional Practice is to enable acquiring and developing of students' practical skills in maintaining computer systems.

Course outcomes

Upon successful completion of the course, students will be able to:
- Safely shut down, open, inspect, and clean computer hardware.
- Test and maintain (update, install, uninstall, etc.) standard system and application software for computer systems.

Course content

Theoretical instruction:

There is no theoretical instruction in this course.

Practical course work:

1. Computer hardware maintenance
- Preventive computer maintenance and troubleshooting
- Cleaning the dust, replacing cooling fans and lubricating
2. Computer software cleaning
- Uninstalling programs
- Disabling startup programs
- Updating the installed programs and drivers with newer versions
- Scanning for viruses and other malware and their removal
- Removing unnecessary files from computers
- Checking hard disk for errors and troubleshooting
- Disk defragmentation
- Creating backups

Literature

1. Thompson, R. B. (2010). *Popravka i nadgradnja PC računara*. Beograd: Kompjuter biblioteka.
2. Minasi M. (2005). *Nadogradnja i održavanje PC računara*. Beograd: Mikro knjiga.

Number of teaching hours: 0				Other:
Lectures: 0	Practical classes: 0	Other forms of instruction:	Research work:	

Teaching methods

Practical work in a company/institution under the guidance and supervision of an expert (practitioner); preparation of professional practice diaries/reports.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation		Practicum, diary/report	30
Practical work	70	Oral exam	
Colloquia		.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Professional Practice 2

Lecturer(s): Andrija D. Tošić, Đorđe K. Petrović, Ilja B. Stanišević, Valentina Ž. Pavlović, Dejan M. Beljić, Ivan D. Pantelić, Branko R. Ćebić

Course status: Compulsory

Number of ECTS credits: 4

Year of study/semester: Second year/4th semester

Course prerequisites: None

Course objectives

The aim of the course is to enable students to perform tasks in companies/institutions and to become familiar with these companies/institutions.

Course outcomes

Upon successful completion of the course, students will be able to:

- Continue to work at job positions at which they gained work experience during the professional practice.
- Describe business operations and organization of the company/institution in which they performed their professional practice.

Course content

Theoretical instruction:

There is no theoretical instruction in this course.

Practical course work:

During the professional practice, the student performs certain work activities in a company or an institution. Both the student and the company/institution are obliged to fully comply with all the regulations (laws and by-laws) and general acts of the company/institution. In the course of their work, the student reports both to the person in charge of the student's job position/workplace and to the professional practice mentor. The student completes the Professional Practice Diary on a daily basis. The daily entries consist of 250-1,000 characters in electronic form. The mentor is to report to the College that the student is present at their workplace. The student is required to spend at least 3 weeks, or 120 hours, at their workplace.

Literature

1. General acts of the company/institution in which the professional practice is performed
2. Regulations and standards related to work activities performed during the professional practice

Number of teaching hours: 0				Other:
Lectures: 0	Practical classes: 0	Other forms of instruction:	Research work:	

Teaching methods

During the professional practice, the student is assigned the professional practice mentor, a person employed by the company/institution and holding at least a bachelor's degree. The professional practice mentor assigns the student to one to two job positions/workplaces during the professional practice. The student can also perform work activities that require at least a high school diploma. The student is obliged to follow the orders and instructions of the immediate supervisor of their workplace and the professional practice mentor. During the professional practice, the mentor evaluates and assesses the performance of the student with a maximum of 70 points, and upon the completion of the practice the maximum number of points allocated for the student's knowledge of the company/institution is 30. The final grade is descriptive - pass or fail.

Assessment (maximum number of points: 100)

Pre-exam obligations	**60** points	**Final exam**	**40** points
Active class participation		Practicum, diary/report	40
Practical work	60	Oral exam	
Colloquia		.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Quality Management and Ecology

Lecturer(s): Branko Ž. Matić

Course status: Elective

Number of ECTS credits: 3

Year of study/semester: Second year/4th semester

Course prerequisites: None

Course objectives

Familiarizing students with the quality concept and the standards and principles of the quality system. Providing the knowledge of quality management systems and ISO 9000 series of standards. Enabling students to perform quality management activities. Familiarizing students with the basic concepts of environment, environmental threats and sources of threats. Enabling students to develop and implement pollution prevention measures in production and agriculture. Enabling students to plan and conduct environmental protection activities as well as the activities ensuring product quality and food safety.

Course outcomes

Upon successful completion of the course, students will be able to:
- Describe the functioning of the quality system.
- Apply appropriate methods to increase the efficiency of a management system.
- Define the indicators of quality and environmental suitability of a product.
- Apply the principles of the quality management system in practice.
- Define the elements of the quality policy, analyze its advantages and improve the policy.
- Classify the roles and tasks of the company management and employees in terms of quality.
- Demonstrate an environmentally friendly attitude.
- Develop HACCP and sustainable development plans.

Course content

Theoretical instruction:

The basics of management and standardization. The evolution of quality concept. ISO 9000 series of standards. Quality management system (its evolution, objectives, scope, design, structure, accreditation). Quality management. Total quality management - TQM (concept, models, elements, implementation). Basics of ecology and environmental protection. ISO 14000 series standards. Environmental management system. Product quality. HACCP method and food safety. Ecology in agriculture.

Practical course work:

Practical examples of ISO 9001 and ISO 14001 certified companies; task assignments; case studies; presentation and defence of seminar papers through discussion; visits to companies with a certified management system and follow-up analyses and discussions; development of HACCP plan.

Literature

1. Filipović, J., & Đurić, M. (2009). *Osnove kvaliteta*. Beograd: Fakultet organizacionih nauka.
2. Filipović, J., & Đurić, M. (2010). *Sistem menadžmenta kvaliteta*. Beograd: Fakultet organizacionih nauka.
3. Petrović, N. (2016). *Ekološki menadžment*. Beograd: Fakultet organizacionih nauka.
4. Petrović, N. (2012). *Ekološki menadžment u poljoprivredi (CD-ROM)*. Beograd: Fakultet organizacionih nauka.
5. Varga, J. (2013). *Bezbednost hrane korak po korak: HCCP priručnik za praksu*. Valjevo: RPK.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 15	Other forms of instruction: 15	Research work:	

Teaching methods

Theoretical lectures combined with interactive teaching methods, case analyses, group projects.

Assessment (maximum number of points: 100)

Pre-exam obligations	**60** points	**Final exam**	**40** points
Active class participation	3	Written exam	
Practical work	20	Oral exam	40
Colloquia	30	.....	
Seminar paper(s)	7		

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Quantitative Methods

Lecturer(s): Ljubica V. Mihić, Đorđe K. Petrović, Valentina Ž. Pavlović

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: First year/2nd semester

Course prerequisites: None

Course objectives

Students will understand the importance and the process of solving a number of real economic problems in the domain of quantitative methods. The course will formulate and illustrate the solutions to certain problems that are frequently encountered in economic practice by using mathematical and statistical methods. It will also demonstrate the application of algebra, analysis, financial mathematics, theory of probability and mathematical statistics in economics.

Course outcomes

Upon successful completion of the course, students will be able to:
- Apply algebra and financial mathematics to solve business problems.
- Calculate principal, interest, debt repayment period by using interest rate calculation.
- Determine the probability of different events.
- Display data in tables and calculate measures of central tendency.
- Determine the relationship between variables.
- Apply knowledge of index numbers when interpreting reports of financial and statistical institutions.

Course content

Theoretical instruction:

1. Elements of linear algebra
2. Differential calculus
3. Economic functions
4. Proportionality and percentage calculus
5. Financial mathematics, interest calculation
6. Bill of exchange discounting and loan amortization
7. Introduction to probability theory
8. Descriptive statistics
9. Distribution of random variables
10. A sample and sample statistics
11. Regression and correlation
12. Index numbers

Practical course work:

Introduction to linear algebra and its applications. Applications of differential calculus. Functions in economics. Proportionality and percentage calculus. Interest calculation. Bill of exchange discounting and loan amortization.
Probability. Descriptive statistics (measure of central tendency, measure of spread/dispersion). Random variable distribution (mathematical expectation of a random variable, graphical representation of a random variable, standard deviation of a random variable, binomial probability distribution). A sample and sample statistics. Regression and correlation. Index numbers (basic, chain). Software application (Minitab and SPSS) in research, surveys, regression models, trends in specific life processes.

Literature

1. Jovašević, Lj., & Gledović, B. (2010). *Kvantitativne metode*. Valjevo: VIPOS.
2. Andrić, V., & Janković, M. (2013). *Kvantitativne metode – zbirka rešenih zadataka*. Valjevo: VIPOS.
3. Backović, M. (2004). *Ekonomsko matematički metodi i modeli*. Beograd: Ekonomski fakultet.
4. Vukdelija, D., & Jovašević, Lj. (2011). *Elementi finansijske matematike*. Valjevo: VIPOS.

Number of teaching hours: 90				Other:
Lectures: 45	Practical classes: 45	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures, practical classes, tasks and practical assignments.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	10	Written exam	
Practical work		Oral exam	30
Colloquia	2x30	.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Sales Management

Lecturer(s): Đorđe M. Pavlović

Course status: Elective

Number of ECTS credits: 7

Year of study/semester: Third year/6th semester

Course prerequisites: None

Course objectives

Introduction to the concept of sales management, its characteristics, elements, development and application.
Understanding the importance of sales management and its direct impact on business performance. Mastering sales management skills and methods of entering, positioning and surviving in the domestic and global markets.

Course outcomes

Upon successful completion of the course, students will be able to:
- Independently manage the sales function.
- Solve tasks and overcome challenges related to sales management and effectively communicate and participate in teamwork.
- Critically evaluate and successfully apply sales management skills and methods.

Course content

Theoretical instruction:

1. Evolution of sales
2. Sales management process
3. The impact of environmental factors on sales programme
4. Corporate marketing strategy and sales programme
5. Sales forecasting
6. Sales organization and sales quota
7. Implementation of the sales programme
8. Evaluation and control of the sales programme
9. International sales and sales management
10. Business etiquette

Practical course work:

1. Group work on case studies related to international sales and sales management
2. Presentation and the analysis of successful companies based on the examples from practice
3. Seminar papers in the field of trade economics

Literature

1. Pavlović, Đ. (2012). *Menadžment prodaje*. Valjevo: VIPOS.
2. Lovreta, S., Janićijević, N., & Petrović, G. (2003). *Prodaja i menadžment prodaje*. Beograd: Savremena administracija.
3. Gašović, M. (2003). *Menadžment prodaje*. Beograd: Savremena administracija.
4. Kotler, F. (2004). *Kako kreirati, ovladati i dominirati tržištem*. Novi Sad: Adizes.
5. Porter, M. (2006). *Konkurentska prednost*. Novi Sad: Adizes.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Theoretical lectures, exercises, practical classes, presentation of seminar papers, discussions, guest lectures delivered by successful managers.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	10	Written exam	
Practical work		Oral exam	30
Colloquia	2x20	.....	
Seminar paper(s)	20		

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Services Marketing

Lecturer(s): Biljana S. Rabasović, Ivana M. Marković

Course status: Elective

Number of ECTS credits: 7

Year of study/semester: Third year/5th semester

Course prerequisites: None

Course objectives

Familiarizing students with the unique nature of services and the impact of their unique characteristics on marketing strategies. Providing knowledge and develop students' skills to apply marketing concepts in order to achieve business success in the growing service sector.

Course outcomes

Upon successful completion of the course, students will be able to:

- Explain the specific and complex nature of the service product.
- Plan and conduct research into the quality of services, customer satisfaction, customer interactions, service environment, etc.
- Make recommendations for improving marketing strategy based on research results.
- Apply an appropriate service management strategy (research, service design, target market selection, promotion, positioning).

Course content

Theoretical instruction:

1. Modern service economy
2. Definition, characteristics and classification of services
3. Service consumer satisfaction
4. Quality of service
5. Service design, branding and positioning
6. Service pricing policy and distribution channels
7. Customer interactions and people management in service organizations
8. Physical evidence and service environment
9. Integrated marketing communication in services
10. Managing supply and demand in the service sector
11. Services marketing research
12. Application of services marketing in specific sectors (tourism, banking, insurance)

Practical course work:

The analysis of current trends in the service sector. The analysis of the service characteristics on a specific example. Detecting difficulties in service delivery and propose solutions. The impact of expectations on customer satisfaction. Service design, branding and positioning. Planning the service environment for different types of services. The analysis and application of research methods in services.

Literature

1. Bateson, J., & Hoffman, D. (2013). *Marketing usluga* (prevod). Beograd: Data status.
2. Veljković, S. (2009). *Marketing usluga*. Beograd: Ekonomski fakultet.
3. *Materijal za vežbe* (skripta). VIPOS.
4. Sudžuk, D., & Rabasović, B. (2010). *Marketing usluga*. Valjevo: VIPOS.
5. Grönroos, C. (2007). *Service Management and Marketing*. West Sussex: John Wiley and Sons.
6. Senić, R., & Senić, V. (2008). *Menadžment i marketing usluga*. Kragujevac: Ekonomski fakultet.
7. Journal of Services Marketing. Emerald Group Publishing.

Number of teaching hours: 75				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction: 15	Research work:	

Teaching methods

Theoretical lectures, case studies, preparation and presentation of seminar papers, discussions, workshops, simulations, role-plays, guest lecturers.

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation	10	Written exam	30
Practical work		Oral exam	
Colloquia	2x25	.....	
Seminar paper(s)	10		

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Web and Mobile Application Development

Lecturer(s): Jelica Ž. Protić, Miloš M. Živković

Course status: Elective

Number of ECTS credits: 7

Year of study/semester: Third year/5th semester

Course prerequisites: None

Course objectives

The objective of the course is to familiarize students with the methods of developing mobile applications, for both the web and tablets and mobile telephones, as well as to enable them to use modern software tools in order to develop mobile applications.

Course outcomes

Upon successful completion of the course, students will be able to:
- Explain the characteristics of client/server architecture.
- Use web forms and web controls and independently create low complexity web applications.
- Recognize the characteristics of mobile operating systems (Android, iOS, Windows Mobile, etc.).
- Use the basic elements of mobile applications and combine existing and known elements to create an independent application.
- Connect their own application to a database and embed external multimedia content in their application.
- Publish their mobile application.

Course content

Theoretical instruction:

1. Web application development
- Introduction to web application programming languages (RNR, ASP.NET, etc.).
- Introduction to databases on the Internet; designing, creating and administering databases; transactions and connections; error handling and debugging; replication and backups.
- Web application development; interface; modular programming, basics of object-oriented programming; security methods; Authentication; JavaScript, jQuery, AJAX.
- Testing and publishing a web application.

2. Mobile application development
- Introduction to mobile operating systems (Android, iOS, Windows Phone, etc.).
- Development environment (Android Studio, Visual Studio-Xamarin. Forms, Eclipse IDE, etc.); virtual mobile devices.
- Basics of program execution (system components, activities, user interface, etc.).
- Simple applications (simple calculation program, displaying notifications, reading and writing data, sending and receiving text massages, etc.).
- Receiving and displaying sensor data; using multimedia content; using data from websites and social networks.
- Communicating with databases.
- Testing and publishing a mobile application.

Practical course work:

1. Databases on the Internet: designing, creating and administering databases on a web server; replication and backups.
2. Web application development: definition, installation and the basics of web application programming languages; arrays, flow control, functions and object-oriented programming, input and output, data forwarding, data storage, security and debug.
3. Mobile application development: Setting up the development environment; Creating and adjusting views, widgets, styles; Creating a functional user environment; The use of location data; The use of data from websites and social networks; Reading and writing data into a database; Testing the application.
4. Project 1: Creating and publishing a web application; Project 2: Creating and publishing a mobile application.

Literature

1. Prettyman, S. (2016). *Naučite PHP 7 objektno-orijentisano modularno programiranje*. Kompjuter biblioteka.
2. Ullman, L. (2012). *PHP i MySQL za dinamičke veb sajtove*. Beograd: CET.
3. Boyer, R., & Mew, K. M. (2016). *Android Studio IDE kuvar za razvoj aplikacija*. Kompjuter biblioteka.
4. Talbot J., & McLea, J. (2014). *Programiranje Android aplikacija*. Beograd: CET.
5. Švark, C. (2013). *Android aplikacije*. Agencija EHO.
6. Mekdonald, M. (2008). *ASP.NET 3.5 sa C# 2008*. Beograd: Kompjuter biblioteka.
7. MacDonald, M. (2010). *Beginning ASP.NET 4 in C#*. New York: Apress.
8. Petzold, C. (2016). *Creating Mobile Apps with Xamarin.Forms*. Redmond: Microsoft Press.
9. DiMarzio, J. (2008). *Android A Programmer's Guide*. McGrow Hill.

Number of teaching hours: 60				Other:
Lectures: 45	Practical classes: 0	Other forms of instruction: 15	Research work:	

Teaching methods

Theoretical lectures, computer laboratory exercises, individual programming assignments, group projects, public presentation and defence of assignments and projects.

Assessment (maximum number of points: 100)			
Pre-exam obligations	**70** points	**Final exam**	**30** points
Programming assignments	10	Written exam	30
Projects	2x30	Oral exam	
Colloquia		.....	
Seminar paper(s)			

Study programme: Business Informatics

Type and level of studies: Basic applied studies/First degree studies

Course: Web Design

Lecturer(s): Đorđe K. Petrović, Dejan M. Beljić

Course status: Compulsory

Number of ECTS credits: 7

Year of study/semester: Second year/4th semester

Course prerequisites: None

Course objectives

Understanding the importance of the web and web design in business and social communication. Enabling students to apply web technologies in business.

Course outcomes

Upon successful completion of the course, students will be able to:
- Explain the functioning of web technologies.
- Create web presentations and publish content on the web.
- Analyze and compare existing web presentations.
- Propose web planning and development solutions.
- Evaluate certain website solutions.

Course content

Theoretical instruction:

1. HTML5
2. CSS 3
3. Design of website presentations
4. Graphic elements of web presentations
5. Static web presentations
6. Dynamic web presentations
7. The use of PHP programming language
8. Connecting web presentations and applications
9. Web presentation development workflow
10. Advanced web development (Responsive Web Design, Bootstrap, JavaScript, jQuery, etc.)

Practical course work:

Exercises part 1: HTML5
Exercises part 2: CSS3
Exercises part 3: Preparation and processing of graphic elements of web pages
Exercises part 4: Installation and use of work and development environment; installation of web content management systems
Exercises part 5: PHP
Project: Designing and publishing a website on a given topic by using a web content management system

Literature

1. Perić, D., Petrović, Đ., & Marić, J. (2013). *Veb dizajn*. Valjevo: VIPOS.
2. Gauchat, J. D. (2015). *HTML5, CSS3 i JavaScript Integrisane tehnologije za izradu veb strana*. Beograd: Mikro knjiga.
3. Robbins, J. N. (2015). *Naučite Web dizajn*. Beograd: Mikro knjiga.
4. Rani, K. A. (2015). *Mastering Web Development with AngularJS and Bootstrap*. Packt Publishing.
5. Zea, R. (2015). *Mastering Responsive Web Design with HTML5 and CSS3*. Packt Publishing.

Number of teaching hours: 60				Other:
Lectures: 30	Practical classes: 30	Other forms of instruction:	Research work:	

Teaching methods

Lectures combined with computer demonstrations, individual student exercises in computer laboratories, case studies, homework assignments, project work (designing and publishing a website on a given topic).

Assessment (maximum number of points: 100)

Pre-exam obligations	**70** points	**Final exam**	**30** points
Active class participation		Written exam	30
Practical work	20	Oral exam	
Colloquia	20	.....	
Project	30		