UNIVERSITETI I EJL
ЈИЕ УНИВЕРЗИТЕТ
SEE UNIVERSITY

FACULTY

OF CONTEMPORARY SCIENCES AND TECHNOLOGIES

STUDY PROGRAMME FOR UNDERGRADUATE STUDIES

(Bachelor of Science)

NAME OF THE PROGRAMME:

BUSINESS INFORMATICS

INTRODUCTION

The three-year curriculum (Bachelor of Science) in Business Informatics merges the best from the business environment and technological perspectives that overall reflect the contemporary industry growth and at the same time prepares the students for leadership positions in organizations throughout the world. The market for such abilities already experiences rapid expansion in the same way the society and economy of this country are moving towards the European Union standards and globalization in general.

The structure of the three-year curriculum contains studies which are dynamic, integrative and interactive by nature. These studies are expected to generate highly professional results adjusted for the needs of the labor market, at the same time serving as a solid background for further studies at post-graduate level.

The Business Informatics curriculum is designed to address the specific needs and market trends that meet the current and future need of the labor market for certain fields of the corporate development in the field of information system management and control as well as their development. The curriculum also involves the portal development, multimedia technologies and projects, IT applications for new businesses, data bases, string value network, e-commerce, interactive marketing, Customer Relations Management (CRM), business convergence and virtual business, corporative finances and accounting.

The undergraduate studies in Business Informatics provides the students with thorough understanding and knowledge from the field of Business and Computer Sciences, while directing them towards certain areas that will be further specialized in the second study cycle. In the course of the three-year curriculum will provide students with opportunities for internship, which will equip them to apply the acquired knowledge and skills in the field of Business Informatics.

The University currently possesses a remarkable IT –infrastructure for the realization of the suggested *curriculum* in the field of Business Informatics with computer laboratories, Internet connection and the option of Distance Learning, as well as a library with online resources available for searching.

The curriculum structure aims for balanced combination of the basic knowledge and specific professional skills. The first year is important for the students as it merges a whole range of interdisciplinary courses with practical implementation in the two fields, Business and Informatics. This will be of considerable benefit for their professional unity.

CURRICULUM DESCRIPTION

Faculty of Contemporary Sciences and Technologies	
1. Institution/ Title issuing body	SEE University
2. Academic Institution	SEE University
3. Location of Instruction	SEEU Campus (Tetovo)
4. Programme accredited by	Accreditation Board
5. Final scholarly degree	BSc
6. Programme	Business Informatics
7. Completion date/revision	September, 2007
8. Student group	2008/2009 Academic Year Generation

9. Programme Objectives

- To provide students with independent research, addressing the areas of Business Informatics that were not addressed with the curriculum;
- To develop skills for critical, analytical and functional approach, comparative skills for problem solving that may be applied in the fields of Business Informatics;
- To provide an opportunity for development of personal skills, communication, research and other important skills necessary for employment.
- To offer an opportunity for introduction and acquisition of first working experiences in a real working environment from the field of studies through practical work and internship;
- To emphasize the multilingual instruction and promote multiethnic and cross-cultural dialog;
- To acquire knowledge and skills from the basic disciplines of Business Informatics: Programming, Databases, Computer Networks, Advanced Web Technologies, Corporate Finances, Management, Marketing and their implementation in the related fields.

10. Learning Outcomes

The instruction provides students with opportunities to develop and prove the knowledge, quality, skills and other features in the following fields.

Acquired knowledge	Lectures/instruction, or teaching methods and assessment strategies used for acquiring and presenting of the outcomes
Acquired knowledge 1. in Business Informatics a. Wide-range knowledge in the Computer Sciences field, at conceptual and applicable level. b. Wide-range knowledge in the field of Economy, Business, Management, Marketing And Information Systems. c. Basic knowledge of current tools and their use in appropriate settings and platforms. d. Basic knowledge in Mathematics, Business and Computer Sciences which are further expanded with deepened knowledge in the field of: Programming, Networking, Databases, Business Models, Corporate Finances and Financial Accounting. 2. English Language (obligatory), French (elective), German (elective) at a relatively advanced level. Advanced knowledge of the Albanian, that is Macedonian Language. 3. Students have the possibility to deepen their knowledge through flexible selection system of advanced elective courses in the field selected according to their personal affinities.	**Lectures/ instruction** The main methods are: -traditional and interactive lectures, lectures given by professionals and experts from the appropriate fields, by invitation; -practical auditory and laboratory tutorials; -seminar papers: individual and team; -completion of practical applicable projects; -workshops and case studies. *Assessment* Within the course programme, the assessment parameter for the course may be: •attendance; •exams; •participation; •tests; •tutorials; •practice; •seminar papers; •field and in-company work; •projects realized; •awards and participation in academic activities beyond the University.

Skills and other contributions **B. General skills for intellectual exchange. Upon successful completion of the programme students will:**	*Lectures/Instruction*
1. Be able to use their knowledge efficiently to analyze complex issues, by using, based on need, Albanian, Macedonian, or English Language. 2. To recognize and identify problems and issues from the relevant fields in terms of their priority. 3. To identify possible alternatives for specific problems and perform justified selection among their solutions. 4. To formulate problems and provide solutions and wide-range implementation in the field of Business Informatics. 5. in Business Informatics: a) acquire basic knowledge in Procedural and Object Programming, Computer Networks, Database Systems, Multimedia and Web Applications, and their integration within the organization. b) acquire basic knowledge in Software Engineering, Software Project Management and Technical Basics of E-commerce. c) acquire understanding about Corporate Business; d) be able to perform consultant and financial services with the aid of Information Technology. 6. To constructively express the instruction processes.	***These skills are mainly developed through interactive lectures, auditory and laboratory tutorials, as well as practice and study of real examples and projects: case study.*** Through the elective courses students have opportunities to acquire advanced knowledge in the field of their interest and become familiar with the methods and techniques on this Interdisciplinary Faculty. In Business Informatics students have the possibility to perform practical applicable solutions in the relevant field on real examples and problems mentored by relevant academic staff specialists. **Assessment** Written exams, oral exams and continuous assessment, presentations, seminar papers on individual and team work and presentation of the completed practical projects.

C Skills acquired from the professional courses: **Application and problem solving.** ***Upon successful completion of the programme students will be able:*** - to work on serious projects for developing software solutions for business companies, -to model, develop, implement and maintain database systems and computer networks in organizations, - to develop Web content and applications with Multimedia features, - to implement the acquired knowledge in business organizations, to conduct research and be analytical in the relevant fields, -to primarily participate in organizational settings, especially in issues related to managing finances, making decisions, building teams, marketing campaigns and information systems.	***Lectures/Instruction*** ***The ability to solve problems in the Business Informatics field is developed through a study of the*** ***representative examples from the real world and creating content, solutions and systems from the given field.*** **Assessment** Written exams, oral exams and continuous assessment, presentations, seminar papers through individual and team work and presented of the completed projects. Team work and presentations, discussion and critical overview of the whole group mentored by the course instructor are supported and encouraged.
Resources, research and assessment Upon successful completion of the programme students will be able: a) to have insight and orientation in a wide range of research resources. The basic course materials are from foreign authors and are available for the students in printed and/or electronic format. b) to communicate in English, Macedonian or Albanian Language.	**Lectures/ instruction** **Assessment** Evaluation of the completed projects, encouraging the use of foreign literature and sources.

D. Main skills:	
Communication Upon successful completion of the programme students will be equipped: a) To use, both in oral and written form, Macedonian/ Albanian and English in the Business Informatics fields. b) To engage both efficiently and constructively In the relevant professional fields. c) To provide clear and coherent presentation on a topic or task by using relevant examples and solutions. d) To use advanced sources for further development and implementation of the acquired knowledge e) To use appropriate terminology in Macedonian/ Albanian and English Language and provide original solutions from their specialization field.	***Lectures/Instruction*** Team and individual participation on seminars, cooperation in scientific- research teams, presentations and active participation in discussions and evaluation of practical examples. **Assessment** Evaluation of the completed projects, encouraging the foreign literature and sources.

11. Study programme structure, admission requirements, levels, modules, and credits

The instruction is offered in full-time and part-time form with a duration of three academic years. The programme consists of obligatory and elective courses. The maximum number of credits that may be acquired in the course of one semester is 30, that is 60 per year- which corresponds to 1500-1800 classes per year. SEE-University brochure contains more detailed information on credit policy.
All the courses are with a duration of one semester.
Students are required to complete all the courses according to the following obligatory programme. Participation in classes is obligatory and is a precondition for successful completion of the course. Every course needs to be completed by satisfying the requirements set in the course-syllabus.

CURRICULUM DRAFT

Semester 1	W/S	Credits	Lectures:	Tutorials:	Overall classes:	Group size
English Language (level 1-4, Academic English)	W	6	0	45	180	30
Albanian Language 1/ Macedonian Language 1	W	3	0	22	90	30
Advanced IT skills	W	3	0	22	90	30
Introduction to Research	W	6	30	15	180	30
Computer Systems	W	6	30	15	180	30
Introduction to Economics	W	6	30	15	180	30
Total		**30**			**900**	

Semester 2	W/S	Credits	Lectures:	Tutorials:	Overall classes:	Group size
English Language (level 1-4, Academic/Advanced Academic English Language)	S	6	0	45	180	30
Albanian Language 2/Macedonian Language 2	S	3	0	22	90	30
Free elective	S	3	0	22	90	30
Mathematics 1	S	6	15	30	180	30
Computer programming 1	S	6	15	30	180	30
Management Principles	S	6	30	15	180	30
Total		**30**			**900**	

Semester 3	W/S	Credits	Lectures:	Tutorials:	Overall classes:	Group size
English Language (level 2-4, English for Specific Purposes 1	W	6	0	45	180	30
Elective Course 1*	W	6	15	30	180	30
Mathematics 2	W	6	15	30	180	30
Computer Programming 2	W	6	15	30	180	30
Financial Accounting	W	6	15	30	180	30
Total		**30**			**900**	

Semester 4	W/S	Credits	Lectures:	Tutorials:	Overall classes:	Group size
English Language (level 2-4, English for Specific Purpose 2	S	6	0	45	180	30
Elective Course 2*	S	6	15	30	180	30
Mathematics 3	S	6	15	30	180	30
Databases	S	6	15	30	180	30
Marketing	S	6	30	15	180	30
Total		**30**			**900**	

Semester 5	W/S	Credits	Lectures:	Tutorials:	Overall classes:	Group size
Algorithms and Data Structures	W	6	30	15	180	30
Advanced Elective Course 1*	W	6	15	30	180	30
Web-programming	W	6	22	22	180	30
Information Systems Fundamentals	W	6	30	15	180	30
Corporate Finances	W	6	15	30	180	30
Total		**30**			**900**	

Semester 6	W/S	Credits	Lectures:	Tutorials:	Overall classes:	Group size
Data Mining	S	6	22	22	180	30
Advanced Elective Course 2/ *Capstone	S	3	0	45	180	30
System and Software Engineering	S	3	30	15	180	30
Principles of Business Information Systems	S	6	30	15	180	30
Business Models	S	6	15	30	180	30
Total		**30**			**900**	

Remark: the distribution of theoretical and practical classes depends on the curriculum draft which may be subject to change as a result of the trends in the course development.

COURSE DESCRIPTION

Advanced IT Skills

The course objective is the student to acquire the knowledge necessary for familiarizing him/herself with all the courses related to Information Technologies at SEEU, by using the current contemporary techniques. The course in Advance IT Skills consists of elementary knowledge in Information Theory and applications from the Microsoft Office package, including Windows, Word, Outlook, Excel, PowerPoint and Access.

Introduction to Research

The course objective is to provide students with understanding and skills for scientific research. They will acquire knowledge on how to collect information and identify the relevant tools for defining the managerial problems as research problems, they will also research the finding of answers related to these problems based on certain pieces of information and analyses.

Computer Systems

- Von Neumann's architecture and the role of the operating system, internal data representation, ALU, IO, memory, cache, data saving on disc and file systems, processes and CPU arrangement, magistrals, interconnection and interruption, fetch-execute cycle.
- Networks: 4-layered connection, physical communications, networking, wireless networking, LAN, MAN, WAN, Ethernet protocols, network devices.
- The Web: HTTP, HTML, servers, browsers, web-based applications.

Introduction to Economics

The course introduces students to the basic concepts and principles of economics, which will provide students will sufficient knowledge to be able to continue and understand the other economic disciplines. This course includes the main market models, from which the student is required to gain critical reasoning about the economic occurrences in a society.

Mathematics 1

The objective of this module is to provide students with the concepts of functions, definition of functions, continuity of the basic functions. To provide them with mathematical knowledge which will be of benefit for limes of functions, function derivation, differential equations, integrals and solving of problems related to finding

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maximum and minimum values of functions, monotony, sequences and rows, matrix theory, determinants, solving of linear equation systems, solving of different problems for certain geometric shapes and different exercises which students may use in other practical problems and applications in the abovementioned titles.

Computer Programming 1

The context of the use of computers from historical and social perspective; information representation in digital computers; introduction to programming with modern advanced programming language such as C++; introduction to algorithms and data structures; their analysis and application as programmes.

Management Principles

In this course students will study the main streams of the Management theories, principles, definition and role of the Management. The course will also introduce the student to the main functions of the management (planning, organizing, coordinating, motivating, control and decision making) which may be implemented in the enterprise management.

Mathematics 2

Theory and application of discrete mathematical structures and their relation to Computer Science and Business Administration. The topics include multiplicities, elements of mathematical logic, relations, functions, combinatorics, permutations, probability, graphs, tress, Bull's algebra, recursive relations, theory of groups and finite automata. Error analysis, solving of non-linear equations, direct and iterative methods for solving linear systems, approximation of functions and numerical differentiation.

Computer Programming 2

The primary course objective is to provide students with advanced skills and programming concepts. Solving of problems and designing programmes with an emphasis on object- oriented programming, programming methods, debugging and documenting. Developing a beneficial software project is obligatory.

Financial Accounting

Through this course students will be introduced to the basic features of financial accounting, such as the Accounting Plan of the Republic of Macedonia, means of payment used in the Republic of Macedonia, the capital, long-term means and reserves.

The students will also study the funds and monetary equivalents, stocks, expenses and depreciation. They will also be provided with knowledge about computing and disbursement of VAT and other reports that will make them skilled at working as accountants.

Mathematics 3

Differential equations of first order, elements of linear programming, functions with multiple variables (limes, continuity, partial derivations, Taylor's theorem, extreme values), multiple integrals and application of the above-mentioned terms.

Databases

Relational database systems: architecture, theory and application. Relational data structures, integrity rules, mathematical description, data manipulation. Data manipulation by using standard SQL, engineer approach to database design in the industry and introduction to non-relational database systems.

Marketing

Through this course students are provided with knowledge on the main marketing concepts and principles. They will acquire the critical and economic marketing aspect, as well as the role, functions and setting of the marketing. They will also study the market segmentation and research. Through this course students will become equipped to analyze and plan the life cycle of the product, price policy, placement and sale, promotion and distribution, as well as personal sale, through which they will be able to operate in the field of enterprise marketing.

Algorithms and Data Structures

A study of the design and analysis of data structures and algorithms. Abstract data types: sequences, rows, lists, trees and graphs. Algorithms: sorting, searching, hashing. Database structure: organization and approach methods.

Web-programming

This course focuses on WWW- technologies. The course includes basic programming in HTML and JavaScript and advanced Server Side programming by using ASP or PHP, multimedia web pages, web-based databases, web services and web servers.

Information Systems Fundamentals

This is an introductory course to Information Systems with case studies. The topics cover: Business Information System Bases, in line with the Information

Technology, computer hardware and software, data resource management, telecommunications and networks, electronic business systems, e-trade, developing business/IT solutions and security issues.

Corporate Finances

It introduces the students to the world of Finances, especially to the basic Finance concepts, such as the temporal value of money, return risk and business financial operations and aims to equip students with resolute rules used in the field of Financial Management.

Data Engineering

This course deals with the role of data in the design, development, management and applicability of complex computer/information systems. The course areas of interest involve database design; meta knowledge on data and its processing; languages for data description, definition of the approach and manipulation with databases; strategies and mechanisms for data approach, security and integrity control.

System and Software Engineering

Tools and techniques used in software development. The concepts of life cycle applied in the specification of programmes, development and maintenance. The topics include overall design principles in software development: the use of techniques for structural programming when writing big programmes: formal methods for programme control; techniques and software tools for programme testing, maintenance and documentation.

Business Information System Principles

The course provides introduction to the basic concepts of Business Information Systems in a contemporary business setting. Case studies will be used in order to raise students' awareness about the everyday business problems. The case studies include the influence of the Information Systems on the Business, the advantages of the Information Systems and the development of Information System Management. Students are at the same time required to work on a small business problem, and create an Information System that will solve the problem.

Business Models

The course includes advanced and integrated research of business models and dynamics of industries which use real project cases to evaluate the influence of technology on the industry dynamics, competition, business models, organizational

strategy, as well as company performance. Students will examine the strategic changes in the organizations from multiple perspectives thus integrating the knowledge from their class tasks. Students will be provided with instructions from the business leaders from different fields.