



South – West University “Neofit Rilski“ 2700 Blagoevgrad,
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INFORMATION PACKAGE

/ECTS/

FIELD OF HIGHER EDUCATION: **5. TECHNICAL SCIENCES**
PROFESSIONAL FIELD: **5.3. COMMUNICATION AND COMPUTER ENGINEERING**
SPECIALTY: **COMPUTER SYSTEMS AND TECHNOLOGIES**

QUALIFICATION CHARACTERIZATION

OF

SPECIALTY: “**COMPUTER SYSTEMS AND TECHNOLOGIES**”
EDUCATIONAL AND QUALIFICATION DEGREE: **MASTER OF SCIENCE**
PROFESSIONAL QUALIFICATION: **ENGINEER**
PERIOD OF STUDY: **1 YEAR**
FORM OF TRAINING: **REGULAR**

REQUIREMENTS FOR THE SPECIALIST'S TRAINING

Engineers majoring in Computer Systems and Technologies, Master's Degree, must be prepared to perform activities such as: design, manufacture and operation of units and devices in computer and communication systems and networks, research, implementation, modeling and operation of facilities , specialized technological equipment and means for connection with stationary and mobile sites, operation and maintenance of information means and technologies for realization of marketing activity in the field of computer and communication equipment and technologies, design and maintenance of technical means for automation, control and technological provision of mobile communication systems; design and software of computer means for management of communication facilities; ensuring quality of service by measuring and controlling the parameters of computer and communication networks and systems, as well as application of methods for digital processing and protection of information.

Acquiring knowledge, skills and competencies for these activities requires training to provide:

- Theoretical knowledge to be able to design and operate nodes and devices on analog, digital and optical principle, systems for processing and transmission of analog and digital information.
- Practical knowledge, skills and habits acquired during the seminars, laboratory and practical exercises, consistent with the nature of their future work, adaptability in accordance with the changing conditions in the implementation of specialists, both individually and as a team. Using modern computer technology to automate your work and business.
- This knowledge is acquired on the basis of fundamental and special training and specialized courses in the field of computer and information technology, increasing the professional skills of the specialist.

- The training of the specialists in the master's program of Computer Systems and Technologies is in accordance with the Bulgarian and world experience on the basis of an in-depth analysis of the curricula and programs for similar specialties of our and foreign universities, universities and colleges.

PROFESSIONAL SKILLS AND COMPETENCE

Graduates of the specialty "Computer Systems and Technologies" with a Master's degree acquire professional skills and competencies:

- manage complex professional activities, including teams and resources;
- to maintain the norms and technical indicators of computer systems and equipment;
- for application of computer and information technologies in setup, control, diagnostics and maintenance of computer and telecommunication systems and networks;
- for development, use, implementation and operation of systems in the field of computer and communication systems - fixed, mobile, wireless communications; processing, storage and transmission of information; security and information security technologies.

**DEGREE COURSE OF "COMPUTER SYSTEMS and TECHNOLOGIES"
CURRICULUM**

First year			
First semester	ECTS credits	Second semester	ECTS credits
Embedded microprocessor systems	6	Digital communications	5
Design of computer network	6	<i>Elective course from II</i>	5
Multimedia technologies	6	<i>Elective course from III gr.</i>	5
Theory of engineering experiment	6	Graduation	15
<i>Elective course from I gr.</i>	6		
	Total: 30		Total: 30

TOTAL FOR THE ONE ACADEMIC YEAR: 60 LOANS

ANNOTATIONS OF THE COURSES

EMBEDDED MICROPROCESSOR SYSTEMS

ECTS credits: 6	Semester: I
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course: Computer systems and technologies

Lecturer: Assoc. Prof., Eng. Ludmila Taneva, PhD – lucy_t@swu.bg

Department: Electrical Engineering, Electronics and Automatics – technical_eea@swu.bg

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-88 51 62

Assistant: Assist. Pavel Djunev – djunev@swu.bg

Department: Communication and Computer Engineering – technical_kktt@swu.bg

Faculty: Faculty of Engineering – technical@swu.bg

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Description of the course:

The course "Embedded microprocessor systems" is part of the curriculum and includes 10 generalized topics. As a form of control, current control and examination are provided. The proposed curriculum studies the requirements for "embedded systems"; the design algorithm; the peculiarities of designing the input and output interface; software systems for embedded systems design; the peculiarities of designing single-processor, two-processor and hierarchical architectures of embedded systems; the means and methods for setting up and documenting the embedded systems. Part of the lecture material deals with problems in the design, setup and testing of embedded systems.

Aim of the course:

The aim of the course is for students to learn and be able to apply the approaches, methods and technical means for analysis, design and application of embedded systems, specialized circuits and single-chip microcomputers in accordance with their needs and interests and to acquire new knowledge and opportunities in this subject. area.

Teaching methods:

The lectures are conducted in the classical way and the students get acquainted sequentially with the provided material. It is planned to work with real embedded microprocessor systems and make specific software decisions. The lectures are richly illustrated with graphic material, which is presented with

a multimedia projector. The visualization of the presented material allows students to receive visual information about the circuit solutions in the design of microprocessor systems.

Prerequisites:

Establishing the preliminary knowledge and skills of students in the discipline, their learning style, motives and interests in the discipline is an important factor in achieving the goals and objectives. To clarify these features, different approaches are provided for establishing the entry level of students, such as: conducting oral talks, test questionnaires or reports from students. Depending on the level of preliminary preparation shown, an update of the content, volume and depth of the topics covered, as well as teaching methods is envisaged.

Enrollment for training in the discipline:

Compulsory course from the curriculum of the specialty "Computer Systems and Technologies", Master's Degree

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the laboratory exercises and the educational department.

DESIGN OF COMPUTER NETWORKS

ECTS credits: 6	Semester: I
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: course project	Course status: Compulsory
	Degree course: Computer systems and technologies

Lecturer: Ch. Assist. Filip Tzvetanov, PhD – ftsvetanov@swu.bg

Assistant: Assist. Pavel Djunev – djunev@swu.bg

Department: Communication and Computer Engineering – technical_kktt@swu.bg

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

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Description of the course:

The course "Computer Network Design" is designed for students of the specialty "KST" trained in a master's program. The study material discusses theoretical and practical knowledge and skills in the basic principles, methods and tools for building computer networks for processing and transmission of data, sound and images. The architecture of computer networks is considered; the methods for access to the communication environment and logical local networks, WAN protocols, routing protocols and others are implemented. Internet.

Aim of the course:

The aim of the course "Computer Network Design" is for students to acquire knowledge about the goals, tasks, physical nature and technological features of computer systems, computer networks, and network technologies. To get acquainted with the areas of application, the types of computer networks, communication environments, as well as the basic protocols and network services on the Internet.

Teaching methods:

The lectures are conducted in the classical way and the students get acquainted sequentially with the provided material. The application of interactive teaching methods is envisaged, overlapping mainly the discussion methods - discussion, discussion and situational methods - method of specific situations, solving cases on various technological problems, simulation of real production problems and making specific technological decisions. The lectures are richly illustrated with graphic material, which is presented with a video projector. The visualization of the exhibited material allows students to receive visual and tactile information about the technological sequence in the manufacture of the sewing product.

Prerequisites:

Establishing the preliminary knowledge and skills of students in the discipline, their learning style, motives and interests in the discipline is an important factor in achieving the goals and objectives. To clarify these features, different approaches are provided for establishing the entry level of students, such as: conducting oral talks, test questionnaires or reports from students. Depending on the level of preliminary preparation shown, an update of the content, volume and depth of the topics covered, as well as teaching methods is envisaged.

Enrollment for training in the discipline:

Compulsory course from the curriculum of the specialty "Computer Systems and Technologies", Master's Degree

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the laboratory exercises and the educational department.

MULTIMEDIA TECHNOLOGIES

ECTS credits: 6	Semester: I
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: course project	Course status: Compulsory
	Degree course: Computer systems and technologies

Lecturer: Assoc. Prof. Ivan Trenchev, PhD – trenchev@swu.bg

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Department: Electrical Engineering, Electronics and Automatics – technical_eea@swu.bg

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Description of the course:

The program offers specialized practical training in the field of multimedia, computer design, three-dimensional modeling and computer graphics. The training is carried out in three main areas - development and integration of multimedia applications, three-dimensional modeling and design, computer animation. The content and structure of the lectures reflect the latest trends in the development of relevant technologies.

Extracurricular learning forms include projects, practical assignments, term papers.

Aim of the course:

Skills to develop individually and in a team of:

- projects that combine the application of modern technological solutions with the creation of artistically made products;
- for application of the main technological means in the field of multimedia, computer graphics and animation and can purposefully apply them in the development of practical tasks.

Teaching methods:

The course is held in lecture halls together with the students from the Master's programs of the Technical Faculty. The exercises are conducted in groups, and usually the groups are composed of 12 students.

Prerequisites:

Establishing the preliminary knowledge and skills of students in the discipline, their learning style, motives and interests in the discipline is an important factor in achieving the goals and objectives. To clarify these features,

different approaches are provided for establishing the entry level of students, such as: conducting oral talks, test questionnaires or reports from students. Depending on the level of preliminary preparation shown, an update of the content, volume and depth of the topics covered, as well as teaching methods is envisaged.

Enrollment for training in the discipline:

Compulsory course from the curriculum of the specialty "Computer Systems and Technologies", Master's Degree

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the laboratory exercises and the educational department.

THEORY OF ENGINEERING EXPERIMENT

ECTS credits: 6	Semester: I
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: course project	Course status: Compulsory
	Degree course: Computer systems and technologies

Lecturer: Assoc. Prof. Dimitrina Kerina, PhD – d_kerina@swu.bg

Assistant: Assoc. Prof. Fatima Sapundzhi, PhD – sapundzhi@swu.bg

Department: Communication and Computer Engineering – technical_kktt@swu.bg

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Description of the course:

The course "Theory of Engineering Experiment" is mandatory for students majoring in Communication Engineering and Technology, Educational and Qualification Degree - Master. The course on "Theory of Engineering Experiment" includes the following main sections: theoretical foundations of engineering experiment, research hypothesis, methodology of engineering experiment, mathematical support of research, planning and organization of engineering experiment and methodology of development and defense of master's thesis . As a form of control, current control and examination are provided.

Having successfully passed the exam in "Theory of Engineering Experiment" will acquire the necessary minimum of theoretical knowledge in the field of organization, conduct, analysis and application of the results of an engineering experiment.

Aim of the course:

The aim of the course is for students to acquire knowledge for successful engineering experiment as well as to use ready-made software products in the processing of experimental results. The course covers a wide range of issues from the methodology of the engineering experiment and the mathematical support of the engineering experiment.

Teaching methods:

Lecture, independent work with a textbook and scientific literature, exercises, collective discussion and discussion on the tasks, independent work.

Prerequisites:

Establishing the preliminary knowledge and skills of students in the discipline, their learning style, motives and interests in the discipline is an important factor in achieving the goals and objectives. To clarify these features, different approaches are provided for establishing the entry level of students, such as: conducting oral talks, test questionnaires or reports from students. Depending on the level of preliminary preparation shown, an update of the content, volume and depth of the topics covered, as well as teaching methods is envisaged.

Enrollment for training in the discipline:

Compulsory course from the curriculum of the specialty "Computer Systems and Technologies", Master's Degree

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the laboratory exercises and the educational department.

INTEGRATED COMPUTER SYSTEMS AND NETWORKS

ECTS credits: 6	Semester: I
Evaluation: ongoing assessment	Hours per week: 2 lectures+2 laboratory exercises
Course type: course project	Course status: Elective
	Degree course: Computer systems and technologies

Lecturer: Ch. Assist. Filip Tzvetanov, PhD – ftsvetanov@swu.bg

Assistant: Assist. Pavel Djunev – djunev@swu.bg

Department: Communication and Computer Engineering – technical_kktt@swu.bg

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Description of the course:

The course "Integrated Computer Systems and Networks" is designed for students of the specialty "KST" trained in a master's program. The study material discusses theoretical and practical knowledge and skills in the basic principles, methods and tools for building integrated computer systems and networks for processing and transmission of data, sound and images. The basics of computer networks and the Internet are also considered: architecture of computer networks; methods for access to the communication environment and realizations of local networks; global network protocols; routing protocols; architecture and basic network services on the Internet.

Aim of the course:

The aim of the course "Integrated Computer Systems and Networks" is for students to acquire knowledge about the goals, tasks, physical nature and technological features of integrated computer systems, computer networks, and network technologies. To get acquainted with the areas of application, the types of computer networks, communication environments, as well as the basic protocols and network services on the Internet.

Teaching methods:

The lectures are conducted in the classical way and the students get acquainted sequentially with the provided material. The application of interactive teaching methods is envisaged, overlapping mainly the discussion methods - discussion, discussion, discussion and situational methods - method of specific situations, solving cases on various technological problems, simulation of real production problems and making specific technological decisions. The lectures are richly illustrated with graphic material, which is presented with a video projector. The visualization of the exhibited material allows students to receive visual and tactile information about the technological sequence in the manufacture of the sewing product.

Prerequisites:

Establishing the preliminary knowledge and skills of students in the discipline, their learning style, motives and interests in the discipline is an important factor in achieving the goals and objectives. To clarify these features, different approaches are provided for establishing the entry level of students, such as: conducting oral talks, test questionnaires or reports from students. Depending on the level of preliminary preparation shown, an update of the content, volume and depth of the topics covered, as well as teaching methods is envisaged.

Enrollment for training in the discipline:

Elective course from the curriculum of the specialty "Computer Systems and Technologies", Master's Degree

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the laboratory exercises and the educational department.

WIRELESS COMMUNICATION SYSTEMS

ECTS credits: 6	Semester: I
Evaluation: ongoing assessment	Hours per week: 2 lectures+2 laboratory exercises
Course type: course project	Course status: Elective
	Degree course: Computer systems and technologies

Lecturer: Ch. Assist. Filip Tzvetanov, PhD – ftsvetanov@swu.bg

Assistant: Assist. Pavel Djunev – djunev@swu.bg

Department: Communication and Computer Engineering – technical_kktt@swu.bg

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

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Description of the course:

The course "Wireless Communication Systems" introduces students to the general characteristics of network communications in industrial environments, network topologies and methods for access to the physical environment, communication mechanisms in industrial networks. The most frequently applied specifications in industrial conditions of these networks are considered, as well as their components and specific features in their industrial realization. Emphasis is placed on the correct choice of communication type, components, network configuration, selection of components and construction and study of application software for the respective industrial communication network.

Aim of the course:

The aim of the course is for students to acquire theoretical knowledge and practical skills and competencies for the most appropriate choice of protocol for building an industrial network and to design an industrial network with the selected protocol. The systematization of this knowledge makes it possible to get acquainted with the methodology of their use.

Teaching methods:

The course is held in multimedia lecture halls. The practical exercises are conducted in groups in laboratories with computers and specialized equipment.

Prerequisites:

Establishing the preliminary knowledge and skills of students in the discipline, their learning style, motives and interests in the discipline is an important factor in achieving the goals and objectives. To clarify these features, different approaches are provided for establishing the entry level of students, such as: conducting oral talks, test questionnaires or reports from students. Depending on the level of preliminary preparation shown, an update of the content, volume and depth of the topics covered, as well as teaching methods is envisaged.

Enrollment for training in the discipline:

Elective course from the curriculum of the specialty "Computer Systems and Technologies", Master's Degree

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the laboratory exercises and the educational department.

DIGITAL COMMUNICATIONS

ECTS credits: 6	Semester: II
Evaluation: Ongoing assessment	Hours per week: 2 lectures+1 laboratory exercises
Course type: lectures + laboratory exercises	Course status: Compulsory
	Degree course: Computer systems and technologies

Lecturer: Assoc. Prof. Gabriela Atanasova, PhD – gatanasova@swu.bg

Assistant: Assist. Eng Georgi Georgiev, PhD – goshko.georgiev@gmail.com

Department: Communication and Computer Engineering – technical_kktt@swu.bg

Faculty: Faculty of Engineering – technical@swu.bg

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Description of the course:

The course Digital Communications is included in the curriculum as an elective course for students majoring in "Computer Systems and Technologies" in the second semester of their studies. This course provides an overview of modern telecommunications networks, technologies for multiplexing and signal transmission in communication networks, plesiochronous (PDH) and synchronous digital hierarchies (SDH). Students will get acquainted with synchronous transport networks (SDH networks), as well as with subscriber access to communication networks and subscriber access networks. The course also covers the Digital Integrated Services Network (ISDN) and the Broadband Integrated Services Network (BISDN). Particular attention is paid to ATM networks, their architecture, protocols, signaling and routing, ATM network traffic and their management. Students will also gain basic knowledge about the new generation of networks (NGN networks), which are beginning to be built intensively thanks to the development of technologies in the field of communications.

Aim of the course:

The aim of the course "Digital Communications" is for students to acquire knowledge about the goals, objectives, physical nature and technological features of integrated computer systems, computer networks and network technologies. To get acquainted with the areas of application, the types of computer networks, communication environments, as well as the basic protocols and network services on the Internet.

Teaching methods:

Lectures and exercises.

Prerequisites:

Establishing the preliminary knowledge and skills of students in the discipline, their learning style, motives and interests in the discipline is an important factor in achieving the goals and objectives. To clarify these features, different approaches are provided for establishing the entry level of students, such as: conducting oral talks, test questionnaires or reports from students. Depending on the level of preliminary preparation shown, an update of the content, volume and depth of the topics covered, as well as teaching methods is envisaged.

Enrollment for training in the discipline:

Elective course from the curriculum of the specialty "Computer Systems and Technologies", Master's Degree

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the laboratory exercises and the educational department.

SERVER TECHNOLOGIES

ECTS credits: 6	Semester: II
Evaluation: Ongoing assessment	Hours per week: 2 lectures+1 laboratory exercises
Course type: lectures + laboratory exercises	Course status: Elective
	Degree course: Computer systems and technologies

Lecturer: Assoc. Prof., Eng. Anton Stoilov, PhD – antonstoilov@swu.bg

Assistant: Assoc. Prof., Eng. Anton Stoilov, PhD – antonstoilov@swu.bg

Department: Electrical Engineering, Electronics and Automatics – technical_eea@swu.bg

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

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Description of the course:

The course "Server Technologies" is part of the curriculum and includes 15 generalized topics in the field of server technology with an emphasis on server administration and programming in the WEB. As a form of control in the training, current control and current assessment are provided. The content of the program covers the main issues related to types of server operating systems, cloud structures, server virtualization, high-performance computing, mobile applications, IP telephony, server storage technologies, WEB services and more. Those who receive an ongoing assessment of poor in "Server Technology" will acquire the necessary knowledge in the application of modern technologies and methods for building modern server systems and technologies. In the practice classes, students explore and apply methods, configure various server systems.

Aim of the course:

The aim of the course "Server Technology" is for students to acquire knowledge to work with different types of server systems and to provide a variety of WEB services and applications. To get acquainted with the areas of application of server technologies and the types of WEB services and applications. Students to acquire knowledge for application of modern methods for administration of server systems and various techniques in creating WEB services and applications.

Teaching methods:

The lectures are held on the basis of pre-designed presentations with a multimedia projector. Each lecture is accompanied by practical examples and tasks that are solved in class. Throughout the lecture, an interactive dialogue with

students is maintained through control questions and answers. The discussion on the new material is held at the end of the lecture.

Prerequisites:

Establishing the preliminary knowledge and skills of students in the discipline, their learning style, motives and interests in the discipline is an important factor in achieving the goals and objectives. To clarify these features, different approaches are provided for establishing the entry level of students, such as: conducting oral talks, test questionnaires or reports from students. Depending on the level of preliminary preparation shown, an update of the content, volume and depth of the topics covered, as well as teaching methods is envisaged.

Enrollment for training in the discipline:

Elective course from the curriculum of the specialty "Computer Systems and Technologies", Master's Degree

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the laboratory exercises and the educational department.

OPTIMIZATION OF DISCRETE STRUCTURES

ECTS credits: 6	Semester: II
Evaluation: Ongoing assessment	Hours per week: 2 lectures+1 laboratory exercises
Course type: lectures + laboratory exercises	Course status: Elective
	Degree course: Computer systems and technologies

Lecturer: Assoc. Prof. Fatima Sapundzhi, PhD – sapundzhi@swu.bg

Assistant: Assoc. Prof. Fatima Sapundzhi, PhD – sapundzhi@swu.bg

Department: Communication and Computer Engineering – technical_kktt@swu.bg

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

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Description of the course:

The proposed curriculum mainly focuses on providing knowledge of an applied nature, which are related to modeling in discrete structures. The basic principles in the study of operations, the typical classes of optimization problems, the basic principles in decision making - in case of determinism, nondetermination, risk conditions and in case of multicriteria optimizations are considered. Methods for optimization of large-scale tasks are given, the latter being illustrated by examples in the field of informatics, economics and management - network planning, breaking down macrosystems into strongly connected components, organization and management of macrosystems, deployment of civil, economic and military sites, selection of optimal strategies and routes. In the lecture course a reasonable balance was sought between the theoretical and applied aspect of the given knowledge with a preference for applicability.

Aim of the course:

The main goal of the studied discipline is for the student to study some emblematic basic algorithms related to search in graphs and to develop his algorithmic thinking.

The main task is for the student to get an idea of the possibility to model through discrete structures and processes. The student after acquaintance with the proposed algorithms to implement them on a computer. With this lecture course to make an interdisciplinary connection with the disciplines - programming and graphs and networks.

Teaching methods:

The lectures are conducted in the classical way and the students get acquainted sequentially with the provided material. The application of interactive teaching methods is envisaged, advocating mainly the discussion

methods - discussion, discussion, discussion and situational methods - a method of specific situations, solving specific practical tasks. The lectures are richly illustrated with graphic material, which is presented with a video projector.

The practical exercises are conducted in a laboratory of the department, equipped with the necessary computers and specialized software. Before each practical lesson, students are informed about the need for preliminary preparation on the topic. The application of interactive teaching methods is envisaged, overlapping mainly the discussion methods - discussion and the situational methods - a method of specific situations and solving specific practical tasks.

Prerequisites:

Establishing the preliminary knowledge and skills of students in the discipline, their learning style, motives and interests in the discipline is an important factor in achieving the goals and objectives. To clarify these features, different approaches are provided for establishing the entry level of students, such as: conducting oral talks, test questionnaires or reports from students. Depending on the level of preliminary preparation shown, an update of the content, volume and depth of the topics covered, as well as teaching methods is envisaged.

Enrollment for training in the discipline:

Elective course from the curriculum of the specialty "Computer Systems and Technologies", Master's Degree

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the laboratory exercises and the educational department.

DATA CODING AND COMPRESSION

ECTS credits: 6	Semester: II
Evaluation: Ongoing assessment	Hours per week: 2 lectures+1 laboratory exercises
Course type: lectures + laboratory exercises	Course status: Elective
	Degree course: Computer systems and technologies

Lecturer: Ch. Assist. Prof. Margarita Todorova, PhD – todorova@swu.bg

Assistant: Ch. Assist. Prof. Margarita Todorova, PhD – todorova@swu.bg

Department: Informatics – informatics@swu.bg

Faculty: Mathematics and Natural Sciences – pmf@swu.bg

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Description of the course:

The course is elective in the 4th semester and aims to give students knowledge and skills on the problems of data coding and compression. Attention is paid to noise protection coding, linear and cyclic codes. Basic strategies for lossy and lossless data compression (Huffman and Lempel-Ziv coding) are considered.

Aim of the course:

The aim of the course "Data Coding and Compression" is for students to acquire knowledge about the main goals, tasks and methods of data coding and compression with loss and without loss of quality.

Teaching methods:

Lectures and exercises.

Prerequisites:

Establishing the preliminary knowledge and skills of students in the discipline, their learning style, motives and interests in the discipline is an important factor in achieving the goals and objectives. To clarify these features, different approaches are provided for establishing the entry level of students, such as: conducting oral talks, test questionnaires or reports from students. Depending on the level of preliminary preparation shown, an update of the content, volume and depth of the topics covered, as well as teaching methods is envisaged.

Enrollment for training in the discipline:

Elective course from the curriculum of the specialty "Computer Systems and Technologies", Master's Degree

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the laboratory exercises and the educational department.

DYNAMIC WEB APPLICATIONS

ECTS credits: 6	Semester: II
Evaluation: Ongoing assessment	Hours per week: 2 lectures+1 laboratory exercises
Course type: lectures + laboratory exercises	Course status: Elective
	Degree course: Computer systems and technologies

Lecturer: Assoc. Prof., Eng. Anton Stoilov, PhD – antonstoilov@swu.bg

Assistant: Assoc. Prof., Eng. Anton Stoilov, PhD – antonstoilov@swu.bg

Department: Electrical Engineering, Electronics and Automatics –
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Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-88 51 62

Description of the course:

The curriculum is designed for the course "Dynamic Web Applications" for students majoring in "Computer Systems and Technologies" at Southwestern University "Neofit Rilski" - Blagoevgrad. The course is designed to give students knowledge of modern programming languages (visual and object-oriented programming) as well as some of the basic tools for creating dynamic WEB applications. The basic principles of building databases and their use through visual software packages are given. Special attention is paid to Internet programming. The basic principles of programming with HTML and some software packages for creating WEB - sites (Front Page, etc.) are considered. Information is provided on the use of Java and Java Script in Internet programming and the use of a database in Internet applications.

The exercises provided in the program aim to further develop the knowledge and create practical skills for using visual programming languages in solving specific tasks. In addition, students will acquire habits for working on the Internet, including creating simple applications.

Aim of the course:

The aim of the course is for students to get acquainted with the principles of developing software applications with modern programming environments. They must be able to freely use program module objects to embed in program applications. Students must learn to develop Web pages and sites and publish materials on the Internet.

Teaching methods:

The course is held in lecture and computer rooms. The exercises are conducted in groups. The application of interactive teaching methods is

envisaged. The lectures are richly illustrated with graphic material, which is presented with a video projector.

Prerequisites:

Establishing the preliminary knowledge and skills of students in the discipline, their learning style, motives and interests in the discipline is an important factor in achieving the goals and objectives. To clarify these features, different approaches are provided for establishing the entry level of students, such as: conducting oral talks, test questionnaires or reports from students. Depending on the level of preliminary preparation shown, an update of the content, volume and depth of the topics covered, as well as teaching methods is envisaged.

Enrollment for training in the discipline:

Elective course from the curriculum of the specialty "Computer Systems and Technologies", Master's Degree

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the laboratory exercises and the educational department