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INFORMATION PACKAGE
/ECTS/

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

QUALIFICATION CHARACTERIZATION
OF
SPECIALTY "**INFORMATION AND COMMUNICATION TECHNOLOGIES**"
EDUCATIONAL AND QUALIFICATION DEGREE: **BACHELOR OF SCIENCE**
PROFESSIONAL QUALIFICATION: **ENGINEER IN INFORMATION AND
COMMUNICATION TECHNOLOGIES**
PERIOD OF STUDY: **4 YEARS (8 SEMESTERS)**
FORM OF TRAINING: **REGULAR**

REQUIREMENTS FOR THE SPECIALIST PREPARATION

Engineers majoring in "Information and Communication Technologies" must be prepared to perform activities such as: design, manufacture and operation of nodes and devices in communication systems and networks, research, implementation, modeling and operation of communication facilities, specialized technological equipment and tools for connection with stationary and mobile sites, operation and maintenance of information means and technologies for realization of marketing activity in the field of 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 cable and mobile communication facilities; ensuring quality of service by measuring and controlling the parameters of 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:

- Broad-based theoretical knowledge to be able to design and operate nodes and devices on analog, digital and optical principle, on systems for transmission of analog and digital information through switching and multiplexing (security, security systems and access systems), design and simulation of circuits and modules, as well as wireless systems.

- Knowledge of the ways and means for automation of the analysis and synthesis of various electronic and communication schemes, as well as the means for control and measurement of the parameters of the modern communication systems and specialized element base. Acquisition of 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. Enrich your knowledge in the field of foreign language learning. Gaining basic knowledge in the field of telecommunications regulations. Ability to independently improve their knowledge and skills.

These requirements are realized through a sufficient amount of knowledge of general educational, general technical, fundamental, professional and practical nature, which include:

- knowledge forming the necessary broad theoretical and general technical foundation in the field of applied mathematics, physics, electrical engineering, programming, materials in electronics, engineering graphics, measurements in communications, information transmission, semiconductor elements, analog and digital circuitry, signals and systems, communication circuits , computer methods for engineering research;

- wide professional and practical knowledge and skills in communication circuits, radio communication equipment, conversion equipment, design and reliability of communication equipment, optical communications, switching systems and terminals, multiplex equipment and digital telecommunication systems, computer modeling and simulation of communication protocols and networks, mobile communications, data transmission and computer communications, transmission media, wireless systems and technologies, sensor networks, security of communication systems and networks, multimedia systems and technologies.

PROFESSIONAL SKILLS AND COMPETENCE

Engineers in the specialty "Information and Communication Technologies" acquire basic skills for: reading technical documentation describing the functional capabilities of telecommunications nodes and systems; use of measuring and control equipment for monitoring and analysis of the parameters of the telecommunication networks; use of computer equipment and application software for documentation and analysis of information, as well as terminals for access to databases, the Internet or within local networks; for basic economic knowledge and management skills in telecommunications; for professional work in working groups and teams of telecommunications specialists. The special

skills are in the field of production of communication components, units, devices and systems, as well as for adjustment, diagnostics, repair and maintenance of communication equipment and facilities for detection and elimination of faults in basic communication devices, units and systems, as well as in the entire telecommunication network by measurements or by testing with diagnostic equipment; skills for installation, adjustment, control, diagnostics and maintenance of units, devices and systems of telecommunication network facilities; for maintaining the norms and technical indicators of telecommunication equipment through diagnostic tests and analysis of the operating parameters; for application of computer and information technologies in setting up, control, diagnostics and maintenance of telecommunication systems and networks.

Graduates of the specialty "Information and Communication Technologies" under the Bachelor's degree receive professional competencies for development, use, implementation and operation of communication systems in the field of fixed, mobile, wireless communications; computer and information technology; technical means and technologies for security, safety and protection.

DEGREE COURSE OF "INFORMATION AND COMMUNICATION TECHNOLOGIES" CURRICULUM

First academic year			
First semester	ECTS credits	Second semester	ECTS credits
Mathematics For Engineers I	6	Mathematics For Engineers II	6
Foreign Language - I	3	Physics For Engineers – II	6
Programing I	6	Electrical Engineering I	6
Engineering Graphics	5	Elective course from group I.	2
Physics For Engineers – I	5	Constructing Elements In Electronics	4
Electrotechnical Materials	5	Electrical Measurements	6
Sport	0	Sport	0
	Total: 30		Total: 30
Second academic year			
First semester	ECTS credits	Second semester	ECTS credits
Data Transfer And Computer Communications	5	Digital Electronic	6
Mathematics For Engineers III	5	Power Conversion Techniques And Power Supplies	6

Analogue Electronic	6	Radio Equipment And Systems	6
Electrical Engineering II	6	Measurement In Communications	6
Technological Practice 1	3	Foreign language II	2
Signals And Systems	5	Digital signal processing	4
	Total: 30		Total: 30
Third academic year			
First semester	ECTS credits	Second semester	ECTS credits
Fundamentals Of Mobile Communication	6	Telecommunication Networks And Systems	6
<i>Elective course from group II</i>	6	Information theory and coding	6
Design And Reliability Of Communications Equipment	6	Sensors And Sensor Networks	6
Foreign Language - III	3	Digital Switching Systems	6
Technological Practice 2	3	Optical Communication Systems	4
<i>Elective course from group III</i>	6	<i>Elective course from group IV</i>	2
	Total: 30		Total: 30
Fourth academic year			
First semester	ECTS credits	Second semester	ECTS credits
Digital Television	5	<i>Elective course from VI group</i>	4
Radio Waves And Radio Links	6	<i>Elective course from VII group</i>	5
Technological Practice 3	3	Production practice	7
New Generation Mobile Networks	6	Law And Regulation In Telecommunications	4
<i>Elective course from V group</i>	6	Diploma Thesis	10
Information security	4		
	Total: 30		Total: 30

TOTAL: 240 CREDITS FOR FOUR ACADEMIC YEARS

MATHEMATICS FOR ENGINEERS – I

ECTS credits: 6	Semester: 1st
Evaluation: written exam	Hours per week: 2 lectures+2 exercises
Course type: lectures+ exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Prof. Il. Gudzenov - iliadgl@swu.bg

Assistant: ch. Assistant Professor Dr. Anka Markovska - a_markovska@swu.bg

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

Faculty: Faculty of Engineering – technical@swu.bg

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Annotation:

The curriculum deals with issues of linear algebra, analytical geometry and differential calculus of a variable. The basic concepts of complex numbers are given. Matrix, determinants, systems of linear equations and methods for their solution, linear spaces and linear transformations / operators /, quadratic forms of analytical geometry, vectors and actions with them, lines and planes, lines and surfaces of second degree are studied. . The main task of the course is to provide fundamental preparation of students majoring in "Information and Communication Technologies" to master the other mathematical and technical disciplines included in the curriculum and apply their theoretical knowledge in solving specific problems in informatics.

Purpose of the course:

The aim of this course is for students to be able to solve systems of linear equations by both methods - Gauss and Kramer's formulas, to apply the studied theory for modeling and solving real practical problems; to master one of the classical methods for studying geometric objects - the analytical one; be able to match algebraic objects, determine their properties and be able to transfer them to others that are difficult to study.

Educational Methods:

The course is held in lecture halls. The exercises are conducted in groups in a computer room, and usually the groups are composed of 10-15 students.

Prerequisites:

Basic knowledge of algebra, geometry, trigonometry, stereometry is desirable

Enrollment for training in the discipline:

The course is studied by all students majoring in Information and Communication Technology, as it is mandatory

Exam registration:

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

FOREIGN LANGUAGE - I

ECTS credits: 3	Semester: 1st
Evaluation: ongoing assessment	Hours per week: 0 lectures+3 seminar exercises +0 laboratory exercises
Course type: seminar exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assist. Prof. Bilyana Georgieva, PhD – bilianag@yahoo.com, bilianag@swu.bg

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

Faculty: Faculty of Engineering – technical@swu.bg

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Annotation:

The course "Foreign Language" aims to ensure the development of communicative skills, mastery of a certain phonetic, grammatical, lexical and thematic minimum, skills and habits for participation in real, communicative situations, knowledge and independent work with vocabulary. It aims to negotiate and systematize the basic knowledge of students and provides a unified starting level for the next stage of training, called "language of the specialty". The choice of topics is based on their high specificity in the scientific style of speech and their unconditional structural significance and necessity in the process of learning a foreign language. Exercises with communicative orientation are widely used, which strengthen the necessary grammatical habits and encourage students to active speech activity within the studied topics. The practical course is based on thematic texts reflecting the student's daily life, basic special technical terminology in the specialty and aims to stimulate the desire and motivation of students to improve their knowledge of a foreign language and corresponds to the level - Elementary and Pre-intermediate.

Purpose of the course:

. The aim of the course is to build initial communicative competence, as the ability to understand and compose orally and in writing meaningful statements, in accordance with the rules of the English language, to develop skills for reading and comprehension of texts from everyday communication and presentation, as well as texts related with the main terms of the specialty; To develop skills for working with a technical dictionary, To be able to translate technical texts from English into Bulgarian with the help of a dictionary.

Educational Methods:

Active methods are used through exercises, tests for knowledge control are conducted, and solving of relevant practical classes, translation of technical literature is assigned.

Prerequisites:

Basic knowledge of English is desirable

Enrollment for training in the discipline:

The course is studied by all students majoring in Information and Communication Technology, as it is mandatory.

Exam registration:

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

PROGRAMING I

ECTS credits: 6	Semester: 1st
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course: : Information and communication technologies

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

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

Faculty: Faculty of Engineering – technical@swu.bg

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Annotation:

The course focuses on C ++ programming - an object-oriented programming language based on the C language. The successful combination of the good sides of the C language and the tools for object-oriented programming are the reason for the great popularity and widespread use of C ++. The course provides knowledge about the basic ideas and characteristics of computers, programming, programming languages, algorithms. The Dev C ++ and CodeBlocks programming environments, error handling, data types, comments, input and output, variables and constants, operators, procedures and functions are introduced. Skills for working with cyclic structures and arrays are formed.

Purpose of the course:

The main goal of the course is to master the principles of programming and the basics of the C ++ programming language, forming skills for compiling and implementing algorithms.

Upon successful completion of the Programming course, students will:

- know the main data types of C ++, variables and constants;
- work with streaming input and output;
- work with branched structures, numerical comparisons and Boolean operations;
- understand the structuring of code through functions, the concept of transmission
- parameters, documentation, scope of variables, recursion;
- use cyclic structures;
- work with arrays.

Educational Method

The course is held in lecture halls together with the students from the bachelor programs of the Technical Faculty. The exercises are held in groups, as the groups are usually composed of 12 students.

Prerequisites:

Basic knowledge of mathematics is desirable.

Enrollment for training in the discipline:

The course is studied by all students majoring in Information and Communication Technology, as it is mandatory.

Exam registration:

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

ENGINEERING GRAPHICS

ECTS credits: 5	Semester: 1st
Evaluation: ongoing assessment	Hours per week: 1 lecture+3 laboratory exercises
Course type: lectures+ exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof., Eng. Stoycho Stefanov, PhD – ststephanoff@swu.bg

Assistant: Chief Assistant Dr. Eng. Evdokia Petkova - e.p.petkova@swu.bg

Department: Mechanical Engineering and Technologies – technical_mtt@swu.bg

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

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Annotation:

Course "Engineering Graphics" is designed to introduce students to the methods of image creation and standards related to engineering graphics.

The course is related to training on technical drawing, mathematics and informatics in primary and secondary school.

Students need to master the necessary knowledge and to develop skills and competencies to implement and reading graphic images of geometric and technical objects.

Purpose of the course:

Students should learn the theoretical material, to acquire skills and competences count and prepare sketches, drawings and other design documents to use them in the study of technical disciplines subsequent semesters and in pursuance of their future profession.

Educational Methods:

Lectures and practical exercises.

Prerequisites:

Basic knowledge of mathematics, basic computer literacy is desirable.

Enrollment for training in the discipline:

The course is studied by all students majoring in Information and Communication Technology, as it is mandatory.

Exam registration:

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

PHYSICS FOR ENGINEERS – I

ECTS credits: 5	Semester: 1st
Evaluation: written exam	Hours per week: 2 lectures+1 laboratory exercise
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course Information and communication technologies

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

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

Department: "Mechanical Engineering and Technology" – technical_mtt@swu.bg

Faculty: Faculty of Engineering – technical@swu.bg

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Assistant: Assoc. Prof., Eng. Raika Stoyanova, PhD – rajka@swu.bg

Department: Mechanical Engineering and Technologies – technical_mtt@swu.bg

Annotation

The lecture material on the subject Engineering Physics - I is divided into the following sections: Kinematics and dynamics of a material point, Relativistic physics, Dynamics of a solid, Oscillations and waves, Dynamics of fluids, Fundamentals of thermodynamics and Fundamentals of molecular kinetic theory. The material is selected in accordance with the planned hours and the specifics of the specialty, and within a reasonable compromise between theoretical and applied material, priority is given to the technical and applied side of the topics.

Purpose of the course:

The course in Physics for Engineers – I aims to provide knowledge about objective fundamental natural laws, basic Physical methods of investigation and basic Physical concepts and relations.

Educational Methods:

The lectures are held in the sequence indicated in the curriculum. The lecture material is developed on Power point and is presented with a video projector. The practical exercises are conducted in a specialized laboratory of Physics at the Technical Faculty

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Prerequisites:

Basic knowledge of mathematics and physics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

ELECTROTECHNICAL MATERIALS

ECTS credits: 5	Semester: 1st
Evaluation: ongoing assessment	Hours per week: 2 lectures+1 laboratory exercise
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course Information and communication technologies

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

Assistant: Chief As. Prof. Ivo Angelov, PhD – ivo.angelov@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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Annotation:

The lecture material on the subject Electrotechnical Materials is divided into the following sections: Physical Fundamentals of Electrical Materials Science, Non-Electrical Properties of Materials, Dielectrics, Conductive Materials, Semiconductor Materials, Magnetic Materials. The application in the electrical engineering of the passive elements resistors, capacitors and coils is considered

Purpose of the course:

To acquaint students with the behavior and processes that occur in different types of electrical materials - dielectrics, conductors, semiconductor and magnetic materials, when placed in an electric, magnetic and thermal field and radiation.

Educational Methods:

The lectures are held in the sequence indicated in the curriculum. The lecture material is developed on Power point and is presented with a video projector. The practical exercises are conducted in a specialized laboratory of Electrical and Nanomaterials of the Technical Faculty.

Prerequisites:

Basic knowledge of mathematics and physics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

MATHEMATICS FOR ENGINEERS - II

ECTS credits: 6	Semester: 2nd
Evaluation: written exam	Hours per week: 2 lectures+2 exercises
Course type: lectures+ exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Prof. Oleg Mushkarov, DSc – mushkarov@math.bas.bg

Assistant: Chief Assist. Prof. Anka Markovska, PhD – a_markovska@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

Annotation:

Main topics:

- Integral calculus of functions of a real variable - indefinite integral, basic integration techniques, definite integral, classes of integrable functions, properties of the definite integral
- Functional rows and rows
- Differential calculus of multivariate functions - private derivatives of first and higher order, local and global extrema of multivariate functions
- Simple differential equations
- Integrated calculation of functions of several variables - double and triple integral, calculation, change of variables, geometric and physical applications
- Curvilinear integrals - definition, properties, calculation, approximations.

It is planned to get acquainted with software products that implement some of the considered methods.

Purpose of the course:

The course aims to provide mathematical foundations for further study of other general disciplines such as physics, electrical engineering, etc. and all special technical disciplines. This course sets also some educational objectives as the development of algorithmic thinking and capabilities for mathematical modelling of natural phenomena.

Educational Methods:

Lectures and lab exercises. The course is held in lecture halls. The exercises are conducted in groups in a computer room, and usually the groups are composed of 10-15 students.

Prerequisites:

Knowledge of Engineering Mathematics I is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

PHYSICS FOR ENGINEERS – II

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

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

Phone: +359-73-88 51 62

Assisstant: Assoc. Prof. Dr. Rayka Stoyanova - rajka@swu.bg

Department: "Mechanical Engineering and Technology" - technical_mtt@swu.bg

Annotation:

The lecture material on the subject Engineering Physics - II is divided into the following sections: Electrostatics, Stationary electromagnetic field, Variable electromagnetic field, Electromagnetic phenomena in matter, Electromagnetic waves and Wave optics. The material is selected in accordance with the planned hours and the specifics of the specialty, and within a reasonable compromise between theoretical and applied material, priority is given to the technical and applied side of the topics..

Purpose of the course:

The course in Physics for Engineers – II aims to provide knowledge about fundamental natural laws, electromagnetic and optic phenomena and basic Physical methods for investigations.

Educational Methods:

Lectures are prepared on Power point. The contemporary technical equipment as multimedia, software, models, etc. is used for these lectures. Lectures are visualized by demonstrations and laboratory tasks performance during the laboratory classes.

Prerequisites:

Basic knowledge of Engineering Mathematics I, Engineering Physics I is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

ELECTRICAL ENGINEERING

ECTS credits: 6	Semester: 2nd
Evaluation: written exam	Hours per week: 2 lectures+1 seminar exercise +1 laboratory exercise
Course type: lectures, seminar and laboratory exercises	Course status: Compulsory
	Degree course: : Information and communication technologies

Lecturer Prof. Dr. Galina Cherneva - galja_cherneva@abv.bg

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

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Assistant: Assoc. Prof. Dr. Ivan Nedyalkov - i.nedqikov@gmail.com

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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Annotation

The content of the curriculum covers topics related to basic elements, laws and methods for analysis of electrical circuits, established DC and sinusoidal modes in electrical circuits, circuits with mutual inductance and three-phase circuits.

A student who has successfully passed the exam in the discipline "Theoretical Electrical Engineering I" acquires basic knowledge, skills and competencies to analyze electrical circuits in different established modes, knows and uses the conditions for assigning maximum power to load, knows the basic dependencies in three-phase circuits.

In the classes for seminars students, solve problems related to the basic laws and methods for analysis of linear electrical circuits in sinusoidal and DC modes, circuits with mutual inductance and power balance.

In the practice classes, students study and analyze linear electrical circuits in sinusoidal and DC modes, resonant states in electrical circuits and three-phase systems.

Purpose of the course:

The aim of the course "Theoretical Electrical Engineering I" is to give students basic knowledge for the study of electrical circuits, with a view to their application in specific electrical and electronic devices and systems.

Educational Methods:

Lectures, seminar and laboratory exercises. The course is held in lecture halls with students from KTT, KST and EEA. The exercises are conducted in groups, and usually the groups are composed of 10-15 students.

Prerequisites:

Knowledge of Engineering Mathematics I, Engineering Physics I is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

COURSE PROJECT IN ELECTRICAL ENGINEERING

ECTS credits: 2	Semester: 2nd
Evaluation : ongoing assessment	Hours per week: 2 lectures+2 laboratory exercises
Course type lectures and laboratory exercises	Course status: Elective
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof. Dr. Ivan Nedyalkov – i.nedqlkov@gmail.com

Assistant: Assistant Engineer Lilia Kiprova – lilya_kiprova@swu.bg

Department: "Communication and computer engineering" - technical_kktt@swu.bg

Faculty: Faculty of Engineering - technical@swu.bg

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Annotation

The course is included in the curriculum as an elective course for students majoring in Information and Communication Technologies during the third semester of their studies. The course is directly related to the material studied in the course of Theoretical Electrical Engineering 1.

Purpose of the course

The aim of the course is for students to gain basic theoretical knowledge about methods for analysis of passive electrical circuits and components, as well as to perform mathematical operations with complex currents, voltages, powers and impedances.

Educational Methods:

The course is held in lecture halls with students from KTT, KST and EEA. The exercises are conducted in groups, and usually the groups are composed

Prerequisites:

Knowledge of Engineering Mathematics I, Engineering Physics I, Theoretical Electrical Engineering I is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

The registration for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the exercises and the educational department. of 10-15 students.

WRITTEN AND SPEECH CULTURE

ECTS credits: 2	Semester: 2nd
Evaluation: ongoing assessment	Hours per week: 2 seminars+2 laboratory exercises
Course type lectures and exercises	Course status: Elective Degree course: Information and communication technologies

Lecturer: Assist. Prof. Dr. Nadelina Ivova.– nadelina_ivova@swu.bg

Assistant: Assist. Prof. Dr. Nadelina Ivova - nadelina_ivova@swu.bg

Department: "Bulgarian language" - filologia@swu.bg

Faculty: Faculty of Philology - filologia@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov Str

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Annotation

The course consists of 30 hours of lectures and the number of hours for extracurricular activities is 30.

The training is carried out according to a curriculum situated in one module, which is a lecture. It includes a set of main topics, specially selected from the field of spelling and orthography in the modern Bulgarian literary language.

It is the duty of the teacher for each subsequent lesson to set a topic and literary sources related to it, and it is the duty of the student in the time for extracurricular activities to prepare independently on the cases of this top

Purpose of the course

The aim of the course is to form in students the ability to use correctly the spelling and orthographic rules operating in the modern Bulgarian literary language. To form in students the ability to explain the mechanism of the admitted spelling or orthographic inaccuracy and the reasons that led to it - assimilation or dissimilation process, dialectal influence, etc.

To cultivate respect for the creative genius of the Bulgarian, embodied in the Bulgarian language.

Educational Methods:

The course is held in lecture halls with students from ICT, KST and EEA. The exercises are conducted in groups, and usually the groups are composed of 10-15 students

Prerequisites:

Basic knowledge of Bulgarian language and literature is desirable.

Enrollment for training in the discipline:

The course is for students majoring in Information and Communication Technology.

Exam registration:

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

CONSTRUCTING ELEMENTS IN ELECTRONICS

ECTS credits: 4	Semester: 2nd
Evaluation: ongoing assessment	Hours per week: 2 lectures+1 laboratory exercise
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof., Eng. Valeri Vachkov, PhD – v.vatchkov@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. Prof., Eng. Ljubomir Markov – lmarkov@swu.bg

Annotation:

The course is being taught using a video wall and multimedia. The necessary time for self study of the students is twice the number of the academic hours. The exercises are carried out in laboratory, equipped with specialized measurement devices. The exam is given to students, attending the laboratory practice, and it is in written form, consisting of two questions.

Purpose of the course:

By means of the subject “Semiconductor elements” the students get acquainted with basic elements of the physics of semiconductors and PN transition, composition, way of work, characteristics, parameters and equivalent elements schemes of semiconductors in discrete and chips application.

Some typical applications are studied. The subject is a basic introductory subject in the electronics science and is studied after the courses in mathematics, physics, and electrical physics. It has basic relations to the consequent specialized courses in electronics, computer science and metrics.

Educational Methods:

The Course is taught in lecture halls together with the students from the major “Computer systems and technologies” in groups as usually the groups consist of 10 to 14 students. The students have individual independent tasks, make up presentations of the projected systems.

Prerequisites:

Knowledge of Engineering Mathematics I, Engineering Physics I, Theoretical Electrical Engineering I is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

ELECTRICAL MEASUREMENTS

ECTS credits: 5	Semester: 2nd
Evaluation: written exam	Hours per week: 2 lectures+1 laboratory exercise
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof. Dr. Eng. Ulyana Paskaleva PhD – paskaleva_6@swu.bg,
uli_6@abv.bg

Department: Electrical Engineering, Electronics and Automatics –
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Assistant: Ch. Assist. Prof. Dr. Emil Frenski - emil_f@swu.bg

Department: "Communication and computer engineering" –
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Faculty: - Faculty of Engineering technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov Str

Phone. 073 88 51 62

Annotation

The training in the discipline includes the study of the basic concepts and definitions in electrical measuring equipment, as well as methods for measuring the basic physical quantities, power, energy, phase difference, frequency, parameters of bipolar poles and others.

Purpose of the course:

To familiarize students with the basic theoretical questions of measurement methods and tools for measuring electrical values. Understanding the basic metrological characteristics of measurement systems to learn to use in the laboratory, basic instrumentation (for voltage, current, power, energy, phase difference, frequency, parameters of bipolar, etc.).

Educational Methods:

Lecture, demonstration, power point presentations, conversation, discussion, conference, analysis of problems, laboratory measurements, laboratory tests. Use interactive methods of training and during lectures and laboratory exercises.

Prerequisites:

Knowledge of Engineering Mathematics I, Engineering Physics I, Theoretical Electrical Engineering I is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

DATA TRANSFER AND COMPUTER COMMUNICATIONS

ECTS credits: 6	Semester: 3rd
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof. Dr. Filip Batalov - batalov@swu.bg

Assistant Assoc. Prof. Dr. Filip Batalov - batalov@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.

Phone: +359-73-88 51 62

Annotation:

The training course "Data Transmission and Computer Communications" presents modern concepts in the development of this field of communications. The course "Data transmission and computer communication" aims to acquaint students with: methods and means of data transmission in computer and communication networks. The protocol architectures of the TCP / IP and OSI model for data transmission are considered, as well as the basic concepts in data transmission, the parameters of the communication signals and the communication channels, the types of transmission media. Particular attention is paid to topics related to linear coding and modulation of digital signals, methods for detecting and correcting bit and dynamic errors in digital data transmission, coding and manipulation of digital signals, protocols for automatic control of the channel layer and modes for Data Transmission.

Purpose of the course:

The aim of the course is for students to get acquainted with modern concepts of data transmission, parameters of communication signals and communication channels, methods for detecting and correcting household and dynamic errors in digital data transmission, coding and manipulation of digital signals, protocols for automatic channel layer control and data transmission modes.

Educational Methods:

The course is held in lecture halls together with students majoring in "Electronics" and "Computer Systems and Technologies". The exercises are conducted in laboratory groups of 10 students

Prerequisites:

Knowledge of Engineering Mathematics I, Engineering Mathematics II, Programming I is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

MATHEMATICS FOR ENGINEERS - III

ECTS credits: 5	Semester: 3rd
Evaluation: written exam	Hours per week: 2 lectures+2 exercises
Course type: lectures+ exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof. Vassil Grozdanov, PhD – vassgroz@swu.bg

Department: Mathematics – technical_kktt@swu.bg

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

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-58 85 31

Assistant: Ch. Assist. Prof. Anka Markovska, PhD – a_markovska@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

Annotation:

The course in Mathematics for Engineers III part includes some special concepts of mathematical analysis, like Fourier series, Functions of complex variables, elements of the operation calculation. Also some elements of the theory of the probability and mathematical statistics are considered.

Purpose of the course:

Students should obtain knowledge for Mathematics III part, which is a basic mathematical discipline. This knowledge is necessary for studying of the main technical sciences.

Educational Methods:

Lectures, seminars, homework, consultations, tests.

Prerequisites:

Knowledge of Engineering Mathematics I, Engineering Mathematics II is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

ANALOGUE ELECTRONIC

ECTS credits: 6	Semester: 3rd
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof., Eng. Vladimir Gebov, PhD – askon@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: ch. Assist. Prof. Dr. E.Frenski - emil_f@swu.bg

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

Annotation:

The training course includes basic issues related to analogue electronics sheets, parts and related connections between them.

Purpose of the course:

Students to acquire the necessary minimum of theoretical and professional knowledge and skills for the implementation of the electronic analogue sheets and parts used in more popular provider in the world.

Educational Methods:

Lectures, individual work and scientific literature textbook exercises, brainstorming and discussion, work individually, solve problems, exercise, and Power Point presentation.

Prerequisites:

Knowledge of Engineering Mathematics I, II, Theoretical Electrical Engineering I, Engineering Physics I, II, Building Elements in Electronics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

ELECTRICAL ENGINEERING

ECTS credits: 6	Semester: 3rd
Evaluation: written exam	Hours per week: 2 lectures+1 seminar exercise +1 laboratory exercise
Course type: lectures+ seminar laboratory exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Prof. Galina Cherneva - galja_cherneva@abv.bg

Assistant: Assoc. Prof. Dr. Ivan Nedyalkov - i.nedqlkov@gmail.com

Department: "Communication and computer engineering" - technical_kktt@swu.bg

Faculty: Faculty of Engineering - technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov Str

Phone. 073 88 51 62:

Annotation:

The course "Theoretical Electrical Engineering II" is part of the curricula of the respective specialties, as the study material is divided into 30 hours of lectures, 15 hours of seminars and 15 hours of practical exercises. Forms of current control and written exam are provided.

The content of the curriculum covers topics related to quadrupoles, transients in linear electrical circuits, distributed parameter circuits, magnetic circuits and electromagnetic fields.

In the classes for seminars, the students solve problems for research of transients in linear electric circuits by different methods, analyze the processes in linear circuits with distributed parameters, and solve basic differential dependences of the electromagnetic field.

In the practical classes, students explore experimentally and analytically the main points of the theoretical material. Computer modeling and simulation of transients in electrical circuits are performed in order for students to acquire the necessary practical skills.

Цел на дисциплината:

Purpose of the course

"Electrical Engineering II" is to give students in a systematic way basic knowledge to analyze electrical and magnetic circuits, to apply the laws of analysis of electrical circuits, to know and use the conditions for giving the load maximum power, to use three-phase circuits.

Educational Methods:

The course is held in lecture halls with students from KTT, KST and EEA. The exercises are conducted in groups, and usually the groups are composed of 10-15 students.

Prerequisites:

Knowledge of Engineering Mathematics I, Engineering Mathematics II, Theoretical Electrical Engineering I is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

TECHNOLOGICAL PRACTICE I: CONSTRUCTING ELEMENTS

ECTS credits: 3	Semester: 3rd
Evaluation: on going assessment	Hours per week: 3 laboratory exercises
Course type: laboratory exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assist. Prof. Dinko Stoykov, PhD - dinkostoikov@swu.bg

Assistant: Assist. Prof. Dinko Stoykov, PhD - dinkostoikov@swu.bg

Department: "Electrical Engineering, Electronics and Automation" - technical_eea@swu.bg

Faculty: Technical Faculty - technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mikhailov Street;

Phone. 073 88 51 62

Annotation

The study material is prepared on the basis of students' knowledge acquired in general technical and special disciplines for the specialty. The main sections and topics are selected and arranged in such a way as to correspond as much as possible with the acquired theoretical knowledge and to help build professional skills and habits. The study of the course will allow students to deepen their understanding and knowledge, to gain practical experience, skills and habits to perform basic electrical operations related to the production and operation of various types of electronic and communication equipment. The material is selected in accordance with the planned hours and the specifics of the specialty, giving priority to the technical and applied side of the topics.

Purpose of the course:

The main goal of the course is for future specialists in Information and Communication Technologies to acquire knowledge, skills, habits and experience in the technology of production and operation of elements, assemblies and units of different types of electronic equipment. To acquire skills for working with reference technical literature, to develop technical and technological documentation.

Educational Methods:

The training is conducted in a specialized laboratory, equipped with the necessary tools and measuring equipment. Auxiliary diagrams, drawings, technical and technological documentation, materials and consumables are prepared in advance for exercise. The laboratory has adapted PC technology for the production of small series of printed circuit boards.

Prerequisites:

Knowledge of Theoretical Electrical Engineering, Engineering Physics, Analog Electronics is desirable. Building blocks in electronics.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

SIGNALS AND SYSTEMS

ECTS credits: 6	Semester: 3rd
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof. Dr. F. Batalov - batalov@swu.bg

Assistant: Assoc. Prof. Dr. F. Batalov - batalov@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.

Phone: +359-73-88 51 62

Annotation:

The teaching course on Signals and Systems treat fundamental knowledge on continuous and discrete signals and systems at time and frequency area. The students receive knowledge on spectral analysis of periodic and non-periodic signals, kind of spectra and their basic characteristics. The topics, connected with signal modulation, methods of amplitude modulation and their influence on the width of frequency bandwidth and increasing of throughput of communication system, transformation of analog signals into digital, kind of digital filters, optimal linear filtration and noise stable coding of signals are detailed considered. This fundamental course on Signals and Systems gives to students the necessity amount of knowledge for their professional skills at followed specialized disciplines from the teaching plan of the specialty.

Purpose of the course:

The teaching discipline devoted on Signals and Systems presents to the students different possibilities of use of signals and systems, their presentation, their parameters, time and frequency characteristics which are necessary for investigation of their behavior at data transfer into communication channels connected with the main processes of data transfer, processing and storage of information.

Educational Methods:

The lectures are leading at lecture auditorium together for the students from specialties Communication Technique and Technology, Electronics and Computer Systems and Technologies. The exercises are leading for laboratory group of 10 stud

Prerequisites:

Knowledge of Engineering Mathematics I, II, III, Analog Electronics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

DIGITAL ELECTRONIC

ECTS credits: 6	Semester: 4th
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof., Eng. Vladimir Gebov, PhD – askon@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. Prof., Eng. Emil Frenski – emil_f@swu.bg

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

Annotation:

The training course includes basic issues related to digital electronics sheets, parts and related connections between them.

Purpose of the course:

The aim of the course is for students to acquire the necessary minimum theoretical and applied knowledge of the principles of operation and design of the most common digital electronic circuits and modules used and applied by the most famous suppliers of such equipment in the world.

Educational Methods:

Active methods are used through laboratory exercises in a laboratory equipped with the necessary equipment and models, tests for knowledge control are conducted, and the solution of relevant practical classes is assigned, discussions and presentations of Power Point papers are made.

Prerequisites:

Knowledge of Engineering Mathematics I, II, III, Analog Electronics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

POWER CONVERSION TECHNIQUES AND POWER SUPPLIES

ECTS credits: 6	Semester: 4th
Evaluation: exam	Hours per week : 2Lect.+0S+2Lab.
Course type: lectures+ laboratory exercises	Course status : Compulsory
	Degree course: : Information and communication technologies

Lecturer: Ch. Assist. Prof. Ivo Angelov, PhD – ivo.angelov@swu.bg

Assistant: Ch. Assist. Prof. Ivo Angelov, PhD – ivo.angelov@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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Annotation:

The course "Power Conversion Techniques and Power Supplies" introduces students to the power supply and converter devices used to power electronics equipment and computers. The principles of operation and design of the most common power supply and converter devices are discussed. Particular attention is paid to the converters of electric energy and the network power systems. At the base of the course are uncontrolled and controlled rectifiers and filters, linear and switched mode DC voltage stabilizers, inverters. Special attention is paid to UPS, autonomous and non-traditional sources of electricity. There is also laboratory practicum through which, practical skills are obtained and the students' ongoing knowledge is monitored.

Purpose of the course:

The aim of the course is to provide knowledge about the principles of operation and the structure of the most common power supply and converter devices. At the base of the course are uncontrolled and controlled rectifiers and filters, linear and switched mode stabilizers, overvoltage and overcurrent protections, inverters and others.

Educational Methods:

Lectures are conducted in the classic way. Active methods are used by laboratories in a laboratory equipped with the necessary equipment and models, tests are conducted to control knowledge, and solving of relevant practical tasks is assigned.

Prerequisites:

Knowledge of Engineering Mathematics I, Analog Electronics, Engineering Physics, Building Elements in Electronics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

RADIO EQUIPMENT AND SYSTEMS

ECTS Credits: 5	Semester: 4th
Assessment: written exam	Hours per Week/SS: 2 lectures+2 laboratory exercises
Course Type: lectures+ laboratory exercises	Course Status: Compulsory
	Specialty: Information and communication technologies

Lecturer: Assoc. Prof. Dr. Nikolai Atanasov natanasov@gmail.com

Assistant: Assist. Prof. Dr. Eng .Georgi Georgiev goshko.georgiev@gmail.com

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

Faculty: Faculty of Engineering – technical@swu.bg

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Annotation:

The course "Radiocommunication Equipment and Systems" acquaints students with the basic theoretical principles on the basis of which the radio communication systems are realized.

This course presents the main building blocks of radio communication systems, as well as the PMR, radio and TV broadcasting, radio relay and radar systems. The ways of transmitting information on different types of radio channels are considered and the principles on which the realization of a radio system from end to end .

Purpose of the course:

The aim of the course is to teach students in a systematic way theoretical knowledge of the basic principles on which radio systems are built, the specific features of stereo analog and digital broadcasting systems, professional mobile radio systems, radio navigation and radar systems.

Educational Methods:

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

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Analog Electronics, Digital Electronics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

MEASUREMENT IN COMMUNICATIONS

ECTS credits: 5	Semester: 4th
Evaluation: ongoing assessment	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course Information and communication technologies

Lecturer: Assist. Prof., Eng. Uliana Paskaleva, PhD – paskaleva_6@swu.bg,
uli_6@abv.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

Annotation:

The training in the course includes the study of methods and means for measuring all parameters of signals - voltage, current, frequency, time, phase differences, parameters of modulated signals, signal spectrum analysis, microprocessor measuring devices, basic ideas for intelligent measuring systems, virtual measuring instruments.

Purpose of the course:

Students to acquire knowledge and skills to practically measure by different methods any parameters of signals and electronic devices, short calculations, validation of knowledge of the basic metrological characteristics of measuring instruments

Educational Methods:

Laboratory exercises occupy 50% of the total number of hours for the discipline, the conditions in the laboratory of this discipline create good conditions for building students' skills to work with a variety of measuring instruments and models, the lectures lay the fundamental foundations of the discipline. Interactive teaching methods are used both during lectures and in laboratory exercises.

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Analog Electronics, Digital Electronics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

FOREING LANGUAGE II

ECTS credits: 3	Semester: 4th
Evaluation: ongoing assessment	Hours per week: 2 seminar exercises
Course type: seminars	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assist.Prof. Dr. Biliana Georgieva – bilianag@yahoo.com, bilianag@swu.bg

Department: "Electrical Engineering, Electronics and Automation" - technical_eea@swu.bg

Faculty: - : Faculty of Engineering technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov Str

Tel. 073 88 51 62

Annotation:

The discipline "Foreign language" aims to ensure the development of communicative skills, mastery of a certain phonetic, grammatical, lexical and thematic minimum, skills and habits for participation in real, communicative situations, knowledge and independent work with vocabulary. It aims to negotiate and systematize the basic knowledge of students and provides a unified starting level for the next stage of training, called "language of the specialty". The choice of topics is based on their high specificity in the scientific style of speech and their unconditional structural significance and necessity in the process of learning a foreign language. Exercises with communicative orientation are widely used, which strengthen the necessary grammatical habits and encourage students to active speech activity within the studied topics. The practical course is based on thematic texts reflecting the student's daily life, elementary special technical terminology in the specialty and aims to stimulate the desire and motivation of students to improve their knowledge of a foreign language and corresponds to the level - Elementary and Pre-intermediate.

Purpose of the course:

The aim of the course is to build initial communicative competence, as the ability to understand and compose orally and in writing meaningful statements, in accordance with the rules of the English language, to develop skills for reading and comprehension of texts from everyday communication and presentation, as well as texts related with the main terms of the specialty; To develop skills for working with a technical dictionary, To be able to translate technical texts from English into Bulgarian with the help of a dictionary.

Educational Methods:

Active methods are used through exercises, tests for knowledge control are conducted, and solving of relevant practical classes, translation of technical literature is assigned.

Prerequisites:

Knowledge of a foreign language I is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

DIGITAL SIGNAL PROCESSING

ECTS credits: 4	Semester: 4th
	Hours per week: 2 lectures+ 1 exercise
Evaluation: ongoing assessment	Course status: Compulsory
Course type: lectures and exercises	Degree course: Information and communication technologies

Lecturer: Prof. Galina Cherneva - galja_cherneva@abv.bg

Assistant: Assist. Prof. Dr. Ivan Todorin ivan_todorin@gmail.com

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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Annotation:

The course "Digital signal processing" is part of the curricula of the respective specialties, as the study material is divided into 30 hours of lectures and 30 hours of seminars. Forms of current control and written exam are provided.

The content of the curriculum covers topics related to discrete signals and systems, discrete order and Fourier transform, z-transform, digital filtering. In the classes for seminars students solve problems related to differential equations, basic operations in digital signal processing, analysis and synthesis of digital filters.

Purpose of the course:

The study of the course "Digital Signal Processing" aims to acquaint students with the basic methods and algorithms of digital processing, discrete and fast Fourier transform, the main stages of digital filter design.

Educational Methods:

The course is held in lecture halls. The exercises are conducted in laboratory group

Prerequisites:

Knowledge of Engineering Mathematics Digital Electronics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

FUNDAMENTALS OF MOBILE COMMUNICATIONS

ECTS credits: 6	Semester: 5th
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof. Dr. G. Atanasova gatanasova@swu.bg

Assistant Assist. Professor Dr. Eng. Georgi Georgiev goshko.georgiev@gmail.com

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

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-88 51 62

Annotation:

Students are acquainted with the basic theoretical principles in the construction and operation of mobile telecommunications systems with different purposes, which have different territorial coverage, different subscriber and traffic capacity and work in different frequency bands.

This course examines the main building blocks of mobile systems, their integration into the overall local and global communication system, their management and related signals. The main types of terminals and the specifics of their application are considered.

Purpose of the course:

The aim of the course is to give students a systematic knowledge of the basic principles on which the different types of mobile systems are built, the specific features of each of them, their areas of application and the different types of terminal devices.

The training in the course aims to get acquainted in detail with the implementation and modes of operation in mobile systems, with the peculiarities of their management, synchronization and signaling.

Educational Methods:

Lectures and laboratory, independent work with a textbook and scientific literature, collective discussion and discussion on the tasks, independent work.

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics Digital Signal Processing is desirable

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

PROPAGATION OF ELECTROMAGNETIC WAVES AND ELECTROMAGNETIC COMPATIBILITY

ECTS Credits: 6	Semester: 5th
Assessment: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course Type: lectures+ laboratory exercises	Course Status: Elective
	Specialty: Information and communication technologies

Lecturer: Assoc. Prof. Peter Apostolov, ScD – p_apostolov@swu.bg

Assistant: Assist. Prof. Dr. Eng. Georgi Georgiev goshko.georgiev@gmail.com

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

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-88 51 62

Annotation:

The training in the discipline includes the study of:

- ESA dissemination mechanism.
- Properties and parameters of the Earth's atmosphere.
- ESA propagation for different frequency bands.
- Electricity distribution schemes.
- Electromagnetic coupling mechanisms and countermeasures.

Purpose of the course:

The aim of the course is to provide students with basic theoretical knowledge, the properties of the Earth's atmosphere, the mechanism of propagation of radio waves in different communication lines, the operation of communication means in conditions of interfering electromagnetic signals and technical methods to reduce mutual interference.

Educational Methods:

Lectures and laboratory, independent work with a textbook and scientific literature, collective discussion and discussion on the tasks, independent work.

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

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

ANTENNAS AND FEEDERS DEVICES

ECTS Credits: 6	Semester: 5th
Assessment: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course Type: lectures+ laboratory exercises	Course Status: Elective
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof. Peter Apostolov, ScD – p_apostolov@swu.bg

Assistant: Assist. Prof. Dr. Eng. Georgi Georgiev- goshko.georgiev@gmail.com

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

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-88 51 62

Annotation:

The training in the discipline includes the study of:

- Fundamentals of electromagnetism in transmission systems.
- Properties and parameters of feeder devices.
- Properties and parameters of antennas for different frequency bands and radio lines.

Purpose of the course:

The aim of the course is for students to gain basic theoretical knowledge about the properties of the electromagnetic field, the parameters of electromagnetic waves, different types of waveguides, feeders and antennas in communication technology.

Educational Methods:

Lectures and laboratory, independent work with a textbook and scientific literature, collective discussion and discussion on the tasks, independent work.

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Digital Electronics, Digital Signal Processing is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

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

DESIGN AND RELIABILITY OF COMMUNICATIONS EQUIPMENT

ECTS credits: 6	Semester: 5th
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof. Dr. Eng. Ulyana Paskaleva, paskaleva_6@swu.bg, uli_6@abv.bg

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

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Assistant: Assist. Prof. Dr. Eng. Georgi Georgiev, goshko.georgiev@gmail.com

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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Annotation:

The course "Design and reliability of communication equipment" is mandatory and covers the topics of methods of construction of electronic, in particular communication equipment, structural - technological methods to ensure electromagnetic compatibility of electronic and communication equipment Topics related to the requirements for construction and technology of the equipment, thermal regime, analysis and control of the technological processes, accuracy, stability, etc.

Regarding reliability: the main indicators of reliability of renewable and non-recoverable electronic products, methods of reliability testing, etc. are considered. The most common probability distributions of the time for trouble-free operation of some major electronic nodes are presented.

The topics for the laboratory exercises help to build practical habits and skills in acquiring even more in-depth knowledge in the field of electronic and communication equipment and technologies.

Purpose of the course:

At the end of the training course students should gain knowledge about the general characteristics of technological processes in the production of electronic equipment - technological control, technological training, surface

mount technology, accuracy in the production of electronic elements and equipment and others.

Educational Methods:

Lectures and laboratory

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Digital Electronics, Analog Electronics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

FOREIGN LANGUAGE - III

ECTS credits: 3	Semester: 5th
Evaluation: ongoing assessment	Hours per week: 0 lectures+2 seminar exercises +0 laboratory exercises
Course type: seminar exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Assist. Prof. Bilyana Georgieva, PhD – bilianag@yahoo.com, bilianag@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

Annotation:

The aim of the course „Foreign language - English” is to ensure the development of communication skills, reaching of certain phonetic, grammatical, lexical and thematic minimum, skills and habits for participation in real, communicative situations, knowledge and individual work with vocabulary. It aims to review and systematize the basic knowledge of the undergraduates and provides equal start level for the next stage of education, called "language of the programme". The choice of topics is based on their high particularly in the scientific style of speech and their unconditional structural significance and necessity of learning a foreign language. Widely used communicative exercises focus that strengthen the necessary grammatical habits and encourage students to be active speech activity in the studied subjects. The practical course is based on the thematic texts reflecting everyday student life, elementary special technical terminology on the subject and aims to stimulate the desire and motivation of students to enhance their language and consistent level – Elementary and Pre-intermediate.

Purpose of the course:

The aim of the course is to build an initial communicative competence, as the ability to understand and draw meaningful oral and written statements, in accordance with the rules of the English language to develop reading skills and comprehension of texts from everyday communication and presentation and related texts the basic terms in the specialty; develop skills in technical vocabulary can make translations of technical texts from English into Bulgarian language using a dictionary.

Educational Methods:

Active methods are used through different exercises; based tests are made for control of the learned, translation of technical literature.

Prerequisites:

Knowledge of a foreign language I, II is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

TECHNOLOGICAL PRACTICE II: DESIGN AND MANUFACTURE OF ELECTRONIC PRODUCTS

ECTS credits: 3	Semester: 5th
Evaluation: ongoing assessment	Hours per week: 3 laboratory exercises
Course type: laboratory exercises	Course status: compulsory
	Degree course: Information and communication technologies

Lecturer: Assist. Prof. Dr. D. Stoykov- dinkostoikov@gmail.com

Assistant: Assist. Prof. Dr. Eng. D. Stoykov - dinkostoikov@gmail.com

Department: "Communication and computer engineering" - technical_kktt@swu.bg,

Faculty: Technical Faculty - technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov Str

Phone:. 073 88 51 62

Annotation:

The study material is prepared on the basis of the knowledge of the students, acquired in Technological Workshop I in the previous semester, the general technical and special disciplines for the specialty. The main sections and topics are selected and arranged in such a way as to correspond as much as possible with the acquired theoretical knowledge and to help build professional skills and habits. The study of the course will allow students to deepen their understanding and knowledge, to gain practical experience, skills and habits to perform basic electrical operations related to the production and operation of various types of electronic and communication equipment. The material is selected in accordance with the planned hours and the specifics of the specialty, giving priority to the technical and applied side of the topics.

Purpose of the course:

The main goal of the course is for future specialists in "Information and Communication Technologies" to acquire knowledge, skills, habits and experience in the technology of production and operation of units and units of different types of electronic and communication equipment. To acquire skills for working with reference technical literature, to design the installation of electronic equipment, to develop technical and technological documentation for the manufacture of basic components and devices of electronic and communication equipment

Educational Methods:

The training is conducted in a specialized laboratory, equipped with the necessary tools and measuring equipment. Auxiliary diagrams, drawings, technical and technological documentation, materials and consumables are prepared in advance for each exercise. The laboratory has adapted PC technology for the production of small series of printed circuit boards.

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Theoretical Electrical Engineering, Building Elements in Electronics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

DIGITAL AND ANALOGUE BROADCASTING

ECTS credits: 6	Semester: 5th
Assessment: written exam	Hours per week: 1 lecture+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Elective
	Degree course: Information and communication technologies

Lecturer: Prof. P. Apostolov ScD- p_apostolov@swu.bg

Assistant Assist. Prof. Dr. Eng. Georgi Georgiev - goshko.georgiev@gmail.com

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

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-88 51 62

Annotation:

The course "Digital and analog broadcasting" introduces students to the basic theoretical principles in the processing and generation of analog and digital stereo signals for broadcasting, the preparation and broadcasting of radio programs, the main types of analog and digital broadcasting systems that have found application. in the modern world.

Purpose of the course:

The aim of "Digital and analog broadcasting" is to give students a systematic knowledge of the basic principles on which analog and digital broadcasting are based, the formation of a complex stereo signal, the specific features of the processing and broadcasting of radio program signals. .

Educational Methods:

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

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Digital Electronics, Analog Electronics, Digital Signal Processing is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

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

WEB DESIGN

ECTS credits: 6	Semester: 5th
Evaluation: written exam	Hours per week: 1 lecture+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Elective
	Degree course: Information and communication technologies

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

Assistant: Assist. Prof. Dr. Eng. Ivan Todorin, ivan_todorin@gmail.com

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

Faculty: Faculty of Engineering – technical@swu.bg

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Annotation:

The course is designed to give students knowledge of some of the basic tools and principles for creating WEB pages and sites, as well as some technologies for creating dynamic WEB applications. The basic principles of building databases and their use through visual software packages are given.

Purpose 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 objects and program modules to embed in software applications. Students must learn to develop Web pages and sites and publish materials on the Internet

Educational Methods:

The course is held in lecture and computer rooms. The exercises are conducted in groups, and usually the groups are composed of 10-15 students. The application of interactive teaching methods is envisaged. The lectures are richly illustrated with graphic material, which is presented with a video projector.

Prerequisites:

Knowledge of Engineering Mathematics, Programming, Computer Aided Design is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

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

SECURITY SYSTEMS AND MONITORING

ECTS credits: 6	Semester: 5th
Evaluation: written exam	Hours per week: 1 lecture+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Elective
	Degree course: Information and communication technologies

Lecturer: Assoc. Prof., Eng. Ivanka Georgieva, PhD – vanyakg@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: Chief Assist. Prof., Eng. Filip Tsvetanov, PhD – ftsvetanov@swu.bg
Department: Communication and Computer Engineering – technical_kktt@swu.bg

Annotation:

The course on „Security Systems and Monitoring“ introduces students to the methodology for the design of security systems and monitoring for different purposes at different objects and with different objectives. Students learn the components for the construction of security systems and monitoring, requirements in their choice. The systematization of this knowledge allows for practical work and design of these systems.

Purpose of the course:

. The aim of the course "Security and Monitoring Systems" is for students to acquire knowledge about the goals, objectives, the physical nature of the technical means from which a security and monitoring system is built, the areas of application and the latest trends in their construction through replacement of the system cabling with sensors and modules transmitting their information to each other via radio signals.

Students to acquire the ability for optimal choice of technical means for building systems for video surveillance, security and monitoring. To develop and offer new, creative solutions for the use of technical means in the field of security. Individually or in a team to design and build security systems, video surveillance and monitoring systems

Educational Methods:

Lectures and laboratory. The course is held in lecture halls together with students of "Computer Systems and Technologies" and "Communication

Engineering". The exercises are held in groups, usually groups are composed of 10 to 14 students.

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Digital Electronics, Digital Signal Processing is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

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

TELECOMMUNICATION NETWORKS AND SYSTEMS

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

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

Assistant: Assist. Prof. Dr. Eng. Georgi Georgiev – goshko.georgiev@gmail.com

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

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-88 51 62

Annotation:

The course in "Telecommunication Networks and Systems" introduces students to the architecture and basic functionality of fixed and cellular networks for mobile communications, signalling and control in telecommunications networks, intelligence in telecommunications networks, basic technical plans, network valuation.

Purpose of the course:

The aim of the course "Telecommunication Networks and Systems" to give students a systematic theoretical knowledge and practical skills for basic terms, standards and standardization organizations in the field of telecommunications networks and systems, elements of telecommunications networks, the concept of smart grids, network architecture of the next generation. The course also covers services provided by fixed, mobile and smart grids..

Educational Methods:

Lectures and laboratory exercises. The course is held in lecture halls . The exercises are conducted in groups, and usually the groups are composed of 10-15 student

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Digital Electronics, Fundamentals of Mobile Communications is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

INFORMATION THEORY AND CODING

ECTS credits: 6	Semester: 6th
Evaluation: written exam	Hours per week: 2 lectures +2 lab. exercises
Course type: lectures+ laboratory exercises	Course status: compulsory
	Degree course: Information and communication technologies

Lecture: Ch. Assist. Prof. Dr. Margarita Todorova - todorova@swu..

Assistant.Ch. Assist. Prof. Dr. Margarita Todorova - todorova@swu.bg

Department: "Informatics" - informatics@swu.bg

Faculty: Faculty of Science - pmf@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov Str

Tel. 073 58 85 31

Annotation:

In the modern world, the term "information" is one of the most popular. The importance of information, along with energy, currently plays a dominant role. Due to the growing complexity of technology and the economy, the importance of proper control and management will increase, and therefore the importance of information and the ability to handle it will increase.

The processes of transmission, transformation and accumulation of information are the basis of the functioning of information systems. Therefore, the quality criterion of information devices is their ability to transmit, accumulate or convert the required amount of information per unit time with allowable distortions and costs. In the process of automated management and control there is an intensive exchange of information between the different parts of the systems, and the amount of information, as well as the speed of its processing and transmission, is constantly increasing. Increasingly high requirements are placed on the reliability of the transmitted messages, which requires the use of special tools that reduce the likelihood of errors to a certain acceptable level. One of the most effective measures to ensure high reliability of transmitted and received messages is the use of noise-tolerant coding methods, so when building effective codes used to detect and correct errors in code combinations, significant attention should be paid to attention in the training of future specialists in the field of information systems and technologies.

The knowledge of the methods, the availability of practical skills for working with modern high-tech algorithms for information processing and coding are the basis for the formation of highly professional engineers with the necessary knowledge and skills for development, operation and repair of modern information and communication equipment.

Purpose of the course:

The course aims to form in students a set of competencies in the following areas:

I. Fundamentals of informatics and information technologies,

II. Coding theory,

III. Fundamentals of information security.

The objectives of mastering the course "Theory of Informatics and Coding" are to deepen the fundamental theoretical knowledge in the field of modern information technology, in particular the formation of basic knowledge in information theory, in the application of the most effective coding methods that allow the transfer of a certain amount of information through a communication channel. As a result of studying the course, students must master methods for determining the capacity of communication channels, sufficient to transmit all incoming information without delays and distortions; study the basic algorithms for constructing various codes used for both data protection and compression. In addition, students must master the method of solving various problems related to the processes of receiving, transmitting, storing and using information, the principles of coding, learning and mastering the most important algorithms in this field, learning and mastering development tools and study of such algorithms

Educational Methods:

The course is held in lecture halls together with students majoring in "Electronics" and "Computer Systems and Technologies". The exercises are held in groups, usually in groups of 10 to 14 students.

Prerequisites:

Knowledge of Engineering Mathematics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

SENSORS AND SENSOR NETWORKS

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

Lecturer: Assoc. Prof., Eng. Ivanka Georgieva, PhD – vanyakg@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: Chief Assist. Prof., Eng. Filip Tsvetanov, PhD – ftsvetanov@swu.bg
Department: Communication and Computer Engineering – technical_kktt@swu.bg

Annotation:

The course on "Sensors and sensor networks" covers the main issues relating to the characteristics, structures and operating principles of sensors, design and construction of sensor networks. Exam in "Sensors and sensor networks" will gain the necessary minimum of theoretical and practical knowledge in the choice of sensors, building wired and wireless sensor networks.

Purpose of the course:

The aim of the "Sensors and sensor networks" is students to acquire systematized knowledge of the physical nature and structure of sensors, principles of operation, the processing of signals, construction of intelligent sensors and sensor networks. To learn about the fields of application interfaces for the sensors and the criteria of such elections, to acquire skills for embedding into electronic systems for control of technological processes and the construction of the sensor networks for monitoring and control of technological processes.

Educational Methods:

Lectures and laboratory. The course is held in lecture halls together with students of "Computer Systems and Technologies" and "Electronics". The exercises are held in groups, usually groups are composed of 10 to 14 students.

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Digital Electronics is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

DIGITAL SWITCHING SYSTEMS

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

Lecturer: Prof. P. Apostolov ScD. - p_apostolov@swu.bg

Assistant: Assist. Prof., Eng. Lilia Kiprova – lilya_kiprova@swu.bg

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

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Annotation

The course "Digital Switching Systems" introduces students to the basic theoretical principles in the construction and operation of digital switching systems for various purposes, which use technologies with channel switching and packet switching.

This course examines the basic building blocks of digital switching systems, their control and related signaling. The main types of terminals and the specifics of their application are also considered.

Purpose of the course

The aim of the course is to give students a systematic knowledge of digital switching systems, the specific features of the types of switching and the different types of terminal devices.

The training in the course aims to get acquainted in detail with the implementation and processes in switching systems, with their management, synchronization and signaling.

Educational Methods:

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

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Digital Electronics, Digital Signal Processing is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

OPTICAL COMMUNICATION SYSTEMS

ECTS credits: 4	Semester: 6th
Evaluation: ongoing assessment	Hours per Week: 2 lectures+1 laboratory exercise
Course Type: lectures+ laboratory exercises	Course Status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Prof. Peter Apostolov, ScD – p_apostolov@swu.bg

Assistant: Assist. Prof., Eng. Lilia Kiprova – lilya_kiprova@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.

Phone: +359-73-88 51 62

Annotation:

The training in the discipline includes the study of:

- Fundamentals of modern optical communication systems.
- Optical lines and networks.
- Optical fibers and components.
- Optical transmitter and receivers.

Purpose of the course:

The aim of the course is to acquire knowledge about optical fibers and their basic parameters and characteristics, as well as construction and types of fiber optic cables. To learn about how to the construction of fiber-optic lines for transmission of digital information with passive and active elements composing these lines. To know how to produce these components and the control of their parameters. Be able to design a linear tract of an optical system for transmitting of digital information.

Educational Methods:

Lectures and laboratory, individual work with a textbook and scientific literature, exercises, collective discussion and discussion on the tasks, individual work

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Digital Electronics, Digital Signal Processing is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

COURSE PROJECT ON DIGITAL SWITCHING SYSTEMS

ECTS credits: 2	Semester: 6th
Evaluation: ongoing assessment	Hours per week: 2 laboratory exercises
Course type: laboratory exercises	Course status: Elective
	Degree course: Information and communication technologies

Lecturer: Prof. Peter Apostolov, ScD – p_apostolov@swu.bg

Assistant: Assist. Prof. Dr. Eng. Georgi Georgiev- goshko.georgiev@gmail.com

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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Annotation:

Each student will define and carry out a project involving a digital switching systems problem. The project report will be written and completed at the end of the semester. The project will include definition of the problem, analysis of requirements, selection of system architecture including relationships within and between network functions, and design, including selection of technologies, equipment and protocols. The project should address performance, scalability and extensibility. Modelling and simulation will be used to obtain results where appropriate.

Purpose of the course:

The main objective of the course project is to make certain practical skills and habits based on theoretical knowledge from the course "Digital switching systems" When developing the project, students are able to work with methodologies and reference literature for the design of switching systems.

Simultaneously semester project is aimed at developing skills for working with software for simulation, optimization and testing of switching systems.

Educational Methods:

Laboratory exercises. The course is held in lecture halls with students from CCTT. Usually the groups are composed of 10-15 students.

Prerequisites:

Knowledge of digital switching systems is desirable

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

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

COURSE PROJECT ON TELECOMMUNICATION NETWORKS AND SYSTEMS

ECTS credits: 2	Semester: 6th
Evaluation: ongoing assessment	Hours per week: 2 laboratory exercises
Course type: laboratory exercises	Course status: Elective
	Degree course Information and communication technologies

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

Assistant: Assist. Eng. Lilia Kiprova, lilya_kiprova@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.

Phone: +359-73-88 51 62

Annotation:

The course "Course project in telecommunications networks and systems" is part of the curriculum of the specialty and includes 3 / three / summarized topics. Forms of control are provided - current control and current assessment.

This project thematically unites the studied material in the discipline "Telecommunication Networks and Systems". The content of the curriculum covers basic issues related to telecommunications systems, teletraffic systems, architecture and basic functionality of fixed networks, basic technical plans, valuation of networks.

Purpose of the course:

The main objective of the course project is to make certain practical skills and habits based on theoretical knowledge from the course "Telecommunication networks". When developing the project, students are able to work with methodologies and reference literature for the design of switching systems.

Educational Methods:

Laboratory exercises. The exercises are conducted in groups, and usually the groups are composed of 10-15 students

Prerequisites:

Knowledge of telecommunication networks and systems is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

COURSE PROJECT ON COMPUTER DESIGN

ECTS credits: 2	Semester: 6th
Evaluation: ongoing assessment	Hours per week: 2 laboratory exercises
Course type: laboratory exercises	Course status: elective
	Degree course: Information and communication technologies

Lecturer: Ch. Assist. Prof. Dr. Eng. Emil Frenski - emil_f@swu.bg

Assistant: Ch. Assist. Prof. Dr. Eng. Emil Frenski - emil_f@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

Phone: 073 88 51 62

Annotation:

Practical exercises, solving computer design problems, drawings of electrical circuits and devices, PCB topology, and SPICE simulation.

Purpose of the course:

The main goal of the course is to provide knowledge and formation of practical skills in the field of computer systems for automated design and optimization of different types of analog and digital circuits.

Educational Methods:

Practical exercises

Prerequisites:

Knowledge of Engineering Mathematics, Digital Electronics, Programming I is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

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

DIGITAL TELEVISION

ECTS credits: 5	Semester: 7th
Evaluation: written exam	Hours per week: 2 lectures+1 laboratory exercise
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course: Information and communication technologies

Lecturer: Prof. Peter Apostolov, ScD, p_apostolov@swu.bg

Assistant: Assist. Prof. Dr. Eng. Georgi Georgiev goshko.georgiev@gmail.com

Department: Communication and Computer Engineering –
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Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

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Annotation:

The Digital TV course introduces students to basic issues related to digital TV systems, standards, image and video formats, digital TV and video cameras, image editing and adding special effects, digital video interfaces, 3D TV, 3D displays, ultra-high resolution technology..

Purpose of the course:

The aim of the course "Digital Television" is to give students a systematic theoretical knowledge and practical skills to work with digital television systems, standards for digital television systems, image and video information formats, digital television and video cameras, image editing and add special effects, digital video interfaces, 3D TV, 3D displays, ultra-high resolution technology.

Educational Methods:

Lectures and laboratory exercises. The course is held in lecture halls with students . The exercises are conducted in groups, and usually the groups are composed of 10-15 students

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Digital Electronics, Digital Signal Processing is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

RADIO WAVES AND RADIO LINKS

ECTS credits: 6	Semester: 7th
Assessment: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course Information and communication technologies

Lecturer: Prof. Peter Apostolov, ScD – p_apostolov@swu.bg

Assistant: Assist. Prof. Dr. Eng. Georgi Georgiev goshko.georgiev@gmail.com

Department: Communication and Computer Engineering –

technical_kktt@swu.bg

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-88 51 62

Course Description:

The training in the discipline includes the study of:

- Fundamentals of electromagnetism.
- Properties of electromagnetic wave propagation media (EMR).
- Properties and parameters of EMR.
- Properties of the Earth's atmosphere.
- Frequency bands for radio communication **and radio lines**

Purpose of the course:

The course aims to provide students with basic theoretical knowledge about the properties of electromagnetic field parameters of electromagnetic waves, radio links for various frequency bands.

Educational Methods:

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

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Digital Electronics, Radio Communication Equipment and Systems is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

TECHNOLOGICAL PRACTICE 3

ECTS credits: 3	Semester: 7th
Evaluation: ongoing assessment	Hours per week: 3 exercises
Course type: exercises	Course status: Compulsory
	Degree course Information and communication technologies

Lecturer: Assist. Prof. Dr. Dinko Stoykov, dinkostoikov@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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Annotation:

The course is related to the production of communication components, assemblies, devices and systems, as well as setup, diagnostics, repair and maintenance of communication equipment and facilities for detection and repair of basic communication equipment, assemblies and systems as well as the entire telecommunications network by measurements or testing with diagnostic equipment, as well as other general fundamental technical disciplines.

Purpose of the course:

The main objective of the course is the future experts in communications equipment and technologies to acquire knowledge, skills, habits and experience for production technology and operation of the units and blocks of various types of communication equipment. To teach students to work with references to the technical literature to design the installation of electronic equipment to produce technical and technological documentation for the production of basic assemblies and electronic devices and communications equipment.

Educational Methods:

The course is held in specialized laboratories with bachelor students in the program "Diagnostics of Electronic Products". The exercises are conducted in groups, and usually the groups are composed of 10 to 15 students.

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Digital Electronics, Radio Communication Equipment and Systems is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

NEW GENERATION MOBILE NETWORKS

ECTS credits: 6	Semester: 7th
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course Information and communication technologies

Lecturer: Assoc. Prof., Eng. Nikolay Atanasov, PhD – natanasov@swu.bg

Assistant: Assist. Prof. Dr. Eng. Georgi Georgiev goshko.georgiev@gmail.com

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

Faculty: Faculty of Engineering – technical@swu.bg

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Annotation:

The course on "New Generation Mobile Networks" covers basic issues related to the architecture and basic functionality of cellular networks for mobile communications built on the standard UMTS, HSPA, LTE, LTE-Advanced. Special attention is paid to the peculiarities of the radio interface and the radio coverage of the considered cellular networks for mobile communications.

Purpose of the course:

The aim of the course "New Generation Mobile Networks" is to give students a systematic knowledge of the architecture and basic functionality of cellular networks for mobile communications, signaling in the radio interface of UMTS, HSPA, LTE and LTE-Advanced, the peculiarities of building radio coverage

Educational Methods:

Lectures and laboratory exercises. The course is held in lecture halls with ICT students. The exercises are conducted in groups, and usually the groups are composed of 10-15 students.

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Fundamentals of Mobile Communications, Radio Communication Equipment and Systems is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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

COMPUTER SIMULATION WITH MATLAB

ECTS credits: 6	Semester: 7th
Evaluation: ongoing assessment	Hours per week: 1 lecture+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Elective
	Degree course Information and communication technologies

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

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

Assistant: ch. Assistant Professor Dr. Emil Frenski - emil_f@swu.bg

Department: "Communication and computer engineering

Faculty: Faculty of Engineering – technical@swu.bg

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Annotation:

It discusses the main components of MATLAB - graphical interface, system commands, basic operations with vectors, matrices and polynomials, the most commonly used graphical commands and functions for numerical and symbolic calculations. MATLAB is a software system that integrates the capabilities for analytical transformations, numerical calculations and high-quality visualization of the results.

The aim of the course is to acquaint students with the rich capabilities of MATLAB, which is a solid basis for performing analytical and numerical calculations in a number of areas of engineering, as well as to create their own packages of programs. It is assumed that students have certain habits in working with Windows applications and have learned some programming language.

Purpose of the course:

The course discusses the basic functions of the MATLAB core and how to create new programs (m-files). Particular attention is paid to programming and creating user programs. The aim of the seminars is to acquaint students with the graphical environment for simulating SIMULINK systems and the rich capabilities of MATLAB for calculating boundaries, derivatives, integrals, research of functions and actions with complex numbers. The laboratory exercises are thematically related to the lecture material and provide an opportunity to acquire practical skills for working with the product..

Educational Methods:

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

Prerequisites:

Knowledge of Engineering Mathematics, Programming I, Computer Design is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

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

DEVELOPMENT OF APPLICATIONS FOR MOBILE OPERATION SYSTEMS

ECTS credits: 6	Semester: 7th
Evaluation: ongoing assessment	Hours per week: 1 lecture+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Elective
	Degree course Information and communication technologies

Lecturer: Assist. Prof. Pavel Djunev – djunev@swu.bg

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

Department: "Communication and computer engineering

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-88 51 62

Annotation:

The course is designed to give students knowledge of some of the basic tools and principles for creating desktop and WEB applications for mobile operating systems, as well as some technologies for creating dynamic WEB applications. Special attention is paid to the work and technologies for developing applications with the Android operating system.

Purpose 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 objects and program modules to embed in software applications. Students must learn to develop mobile applications and Web pages and publish materials on the Internet.

Educational Methods:

The course is held in lecture and computer rooms. The exercises are conducted in groups, and usually the groups are composed of 10-15 students. The application of interactive teaching methods is envisaged. The lectures are richly illustrated with graphic material, which is presented with a video projector.

Prerequisites:

Knowledge of Engineering Mathematics, Computer Aided Design, Programming I is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration

The enrollment for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the exercises and the training department.

SATELLITE COMMUNICATIONS

ECTS credits: 4	Semester: 8th
Assessment: written exam	Hours per week: 2 lectures+1 laboratory exercise
Course type: lectures+ laboratory exercises	Course status: Elective
	Degree course: Information and communication technologies

Lecturer: Prof. Peter Apostolov, ScD – p_apostolov@swu.bg

Assistant: Assist. Prof .Dr. Eng .Georgi Georgiev goshko.georgiev@gmail.com

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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Annotation:

The course "Satellite communications" provides in-depth treatment of satellite communication systems operation and planning, in-depth understanding of modern satellite multiple access, modulation and coding schemes.

Consider the orbital position of the satellites, setting the scope and characteristics of a particular satellite communication system.

Presented are various types of satellite communication systems, analyzing their structure, describing air space and ground segments.

Purpose of the course:

The goal of "Satellite communications" is to give the students systematized theoretical knowledge of the basic principles underpinning satellite communications systems, the specifics of Earth orbit and the types of work of these orbits.

The course aims at familiarizing in detail the implementation and processes at various stages of the transmission signal from an earth station to a satellite and then to the end user in different types of systems.

Educational Methods:

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

Prerequisites:

Knowledge of Engineering Mathematics, Engineering Physics, Fundamentals of Mobile Communications is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

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

DEDICATED SHORT RANGE COMMUNICATIONS

ECTS credits: 4	Semester: 8th
Evaluation: written exam	Hours per week: 2 lectures+1 laboratory exercise
Course type: lectures+ laboratory exercises	Course status: Elective
	Degree course Information and communication technologies

Lecturer: Assoc. Prof., Eng. Nikolay Atanasov, PhD – natanasov@swu.bg

Assistant: Assist. Prof .Dr. Eng .Georgi Georgiev goshko.georgiev@gmail.com

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

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-88 51 62

Annotation:

The course "Dedicated short range communications" introduces students to basic issues related to networking technologies for short-distance communications, radio interfaces, antennas, applications in intelligent transport systems, network architecture and security principles in the transmission of information.

Purpose of the course

The aim of the course is to give students a systematic theoretical knowledge and practical skills for building, researching and analyzing networks for short-distance communication, sitting down characteristics of antennas used in these networks, the implementation of target networks and the principles of security in the transmission of information.

Educational Methods:

Lectures and laboratory exercises. The course is held in lecture halls with ICT students. The exercises are conducted in groups, and usually the groups are composed of 10-15 students.

Prerequisites:

Knowledge of Engineering Mathematics, Fundamentals of Mobile Communications is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

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

WIRELESS COMMUNICATIONS

ECTS credits: 5	Semester: 8th
Evaluation: written exam	Hours per week: 2 lectures+2 laboratory exercises
Course type: lectures+ laboratory exercises	Course status: Compulsory
	Degree course Information and communication technologies

Lecturer: Assoc. Prof. Dr. Nikolai Atanasov – natanasov@swu.bg

Assistant: Chief Assist. Prof., Eng. Filip Tsvetanov, PhD – ftsvetanov@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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Annotation:

The course on "Wireless Communications" introduces students to the methodology for the design of wireless systems and monitoring different processes and projects. Systematization of this knowledge allows to pass to familiarization with the methodology of their use.

Purpose of the course:

The aim of the course "Wireless Communications" is for students to acquire knowledge about the goals, objectives, the physical nature of the technical means from which to build a wireless transmission system, the areas of application and the latest trends in their construction wirelessly. Systems made up of sensors and modules that transmit information to each other via radio signals.

To acquire the ability for optimal choice of technical means for building wireless monitoring systems and data transmission. To develop and offer new, creative variants of solutions for the use of technical means in the field of security, data transmission, long-distance information exchange Individually or in a team to design and build wireless systems.

Educational Methods:

Lectures and laboratory. The course is held in lecture halls together with students of "Computer Systems and Technologies" and "Communication Engineering". The exercises are held in groups; usually groups are composed of 10 to 14 students.

Prerequisites:

Knowledge of Engineering Mathematics, Fundamentals of Mobile Communications is desirable.

Enrollment for training in the discipline:

The course is optional for students majoring in Information and Communication Technology.

Exam registration:

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

AUDIO SIGNAL PROCESSING AND CODING

ECTS Credits: 5	Semester: 8th
Evaluation: written exam	Hours per Week/SS: 2 lectures+2 laboratory exercises
Course Type: lectures+ laboratory exercises	Course Status: Elective
	Course degree: Information and communication technologies

Lecturer: Assoc. Prof. Dr. Ivan Nedyalkov - i.nedqlkov@gmail.com

Assistant: Assist. Prof. Dr. Eng. Georgi Georgiev – goshko.georgiev@gmail.com

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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Course Description:

The course "Processing and coding of audio signals" introduces students to the basic theoretical principles in the processing and formation of analog and digital audio signals and the formats in which they are presented during recording, transmission over a communication channel and during reproduction.

This course covers the basic building blocks of analog and digital audio systems for recording, playback and sound. with advanced technologies for compact presentation of sound signals.

Course Aims:

The subject „Audio Signal Processing and Coding " focuses on gaining systematized theoretical knowledge of the basic principles in the field of signal processing and perceptual (psychoacoustic) coding.

The course aims at familiarizing in detail the implementation and processes at various stages of sound processing and the practical realization of different types of systems for sound reproduction.

Teaching Methods:

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

Prerequisites:

Knowledge of Engineering Mathematics, Digital Signal Processing, Information Theory and Coding is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

The enrollment for the formation of the complex current assessment is coordinated with the holder of the discipline, the leader of the exercises and the training department.

PRODUCTION PRACTICE

ECTS credits: 6	Semester: 8th
Evaluation: conducting practical training	Hours per week: 180 hours / 15 hours of classroom and 165 hours of extracurricular employment
Course type: practical training	Course status: compulsory
	Degree course: Information and communication technologies

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

Department: "Communication and computer engineering

Faculty: Faculty of Engineering – technical@swu.bg

Address: 2700 Blagoevgrad, 66 Ivan Mihailov str.

Phone: +359-73-88 51 62

Annotation:

The course allows students to connect the theoretical knowledge of the material studied and the acquired knowledge, skills and habits in teaching practice with their application in the real conditions of production and operation, ways of control and management of processes in engineering and technology. Students get acquainted with the devices and machines that serve the separate production processes, as well as the requirements they must meet. Last but not least, the students get acquainted with the different ways, technologies and equipment for environmental protection, increasing the profitability of production and the quality of production.

Purpose of the course:

On the basis of theoretical knowledge to form skills and habits for the application of different methods and approaches in real practice, to build students' ability to work in a team, to solve research problems, by conducting training exercises, ascertaining or creative experiments and manufacture of products with a certain degree of complexity

Educational Methods:

The internship is carried out in companies, enterprises and laboratories, where appropriate jobs, equipment and qualified staff are provided for conducting an effective process of training and control of students.

Prerequisites:

The production practice has a connection with all the studied material.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

The formation of the complex current assessment is coordinated with the holder of the discipline, the employer and the training department.

LAW AND REGULATION IN TELECOMMUNICATIONS

ECTS credits: 4	Semester: 8th
Evaluation: written exam	Hours per week: 2 lectures+1 seminar exercise
Course type: lectures+exercises	Course status: compulsory
	Degree course: Information and communication technologies

Lecturer: Assist. Prof. Dr. Georgi Georgiev - goshko.georgiev@gmail.com

Assistant: Assist. Prof. Dr. Eng. Georgi Georgiev - goshko.georgiev@gmail.com

Department: "Communication and computer engineering" - technical_kktt@swu.bg,

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Address: 2700 Blagoevgrad, 66 Ivan Mihailov Str

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Annotation:

The course "Legal regulations in telecommunications" is mandatory for students majoring in "Information and Communication Technologies". As a form of control, current control and examination are provided.

The content of the program covers the main issues related to the legal regulation and types of licensing regimes in the telecommunications sector, study of the regulatory framework, types of administrative procedures, administrative criminal liability, the implemented state sectoral policy in the field of telecommunications and postal services. of course, EU regulations. In the classes for practical exercises the students study the different legal cases, administrative procedures and the types of document circulation in the procedures related to the regulatory and permitting regimes in the telecommunications sector.

The systematization of this knowledge makes it possible to get acquainted with the methodology of their use.

Purpose of the course:

The aim of the course "Legal and regulations in telecommunications" is for students to acquire knowledge of the basic regulations, registration and permit regimes and procedures contained therein, the activities of regulatory authorities and, of course, current European legislation in the telecommunications sector. Students will get acquainted with the types of licensing regimes under the LEC, the markets of electronic communications networks and services, the protection of the interests of end users according to the LEC, different types of standards in the field of electronic communications maintaining electronic communication networks and infrastructure,

administrative and criminal liability under the networks and services, principles and regulations in building and law, etc.

Educational Methods:

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

Prerequisites:

Basic knowledge of regulatory documents in communication technology is desirable.

Enrollment for training in the discipline:

The course is mandatory and is studied by all students majoring in Information and Communication Technology.

Exam registration:

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