

DESCRIPTION OF THE COURSE

Name of the course Circuitry for impulse and mixed signals	Code: BE34	Semester: V
Type of teaching: Lectures, Seminar exercises and laboratory work	Lessons per week: L – 2 hours, SE – 1 hour LW-2 hours	Number of credits: 6

LECTURER:

Assoc. Prof. Ph.D.. Svetoslav Ivanov (FEA), tel.: 032 659720, email: blufam@tu-plovdiv.bg Technical University of Sofia, branch Plovdiv.

COURSE STATUS IN THE CURRICULUM: Compulsory course for students in the specialty "Electronics" of the FEA, Bachelor's Degree.

AIMS AND OBJECTIVES OF THE COURSE: The aim is to provide students with knowledge of the methods and means for receiving, converting, amplifying and measuring electrical impulse and mixed signals. They will gain knowledge on the analysis and synthesis of impulse circuits and converters as well as their application areas.

DESCRIPTION OF THE COURSE: The discipline is fundamental to the knowledge and skills in the design of impulse circuits and devices for digital-analog and analog-to-digital signal conversion. The course material covers the issues related to the analysis of transient processes in impulse circuits, their variants and methods for their design. Students will also be acquainted with the fields of application of impulse circuits and signal converters.

PREREQUISITES: Knowledge of Electronic and Semiconductor Elements; "Electronic Analog Circuits and Devices", "Electronics Measurements" and "Signals and Systems".

TEACHING METHODS: The lectures are presented with the help of a multimedia projector and by writing the board, considering the structure of the lecture, definitions and basic theoretical concepts, quantities, drawings, dependencies, graphs and formulas. Students are provided with the content of the lectures delivered in electronic format.

METHOD OF ASSESSMENT: The achievement of this goal is monitored continuously throughout the semester by seminars, labs, course work and the written exam at the end of the semester.

INSTRUCTION LANGUAGE: Bulgarian

BIBLIOGRAPHY:

- 1) M. Dimitrova, Impulse Circuits and Devices in 2 volumes, S., Tehnika, 1987.
- 2) K. Konov, Impulse Circuits, (Manual on Electronic Circuits, Part VII), S. Tehnika, 1984.
- 3) Yu. Erofeev, Fundamentals of impulse technology, ed. High school, 1979
- 4) J. Jansen, Digital Electronics Course, Part I, ed. World, Moscow, 1987.
- 5) Rick Lyons, Streamlining Digital Signal Processing, Wiley 2012
- 6) Martin Vetterli, Jelena Kovacevic, Vivek K Goyal, Signal Processing

Foundations, Massachusetts Institute of Technology & Boston University, Cambridge
University Press 2014

DESCRIPTION OF THE COURSE

Name of the course Microprocessor techniques	Code: BE35	Semester: V
Type of teaching: Lectures, laboratory work, seminar exercise	Lessons per week: L – 2 hours; LW – 2 hour, SE- 1 hours	Number of credits: 6

LECTURER:

Ass. Prof. PhD. Boyko Baev Petrov, tel: 659760 e-mail: bpetrov@tu-plovdiv.bg
TU-Sofia, branch Plovdiv

COURSE STATUS IN THE CURRICULUM: Obligatory subject for student's specialty "Electronics", bachelor

AIMS AND OBJECTIVES OF THE COURSE:

After subject completion the students know a characteristics, functionality, organization, development and applications of microprocessors and microcontrollers for electronic single-devices and systems manufacture and support.

DESCRIPTION OF THE COURSE: The main topics concern: Software model, instruction set, addressing modes of microprocessor; System bus organization of microprocessor single-devices and systems; Memory devices: RAM, EPROM, FLASH - characteristics and applications; Methods and circuits for address decoding; In-circuit, system and bus-oriented interfaces: theory, organization, circuits and applications; Counters and timers: organization, modes of operation, applications; Data acquisition systems: bus-oriented ADC and DAC; Microcontrollers - architecture, functionality and applications; Development, emulation, simulation and testing of microprocessor and microcontroller based devices and systems - methods and equipments.

PREREQUISITES: Physics, Digital electronic and Software skills

TEACHING METHODS: Lectures, using slides, case studies, laboratory and semester project (obligatory), work in teams, protocols and semester project description preparation and defence.

METHOD OF ASSESSMENT: Written examination (70%), laboratory assessments (20%), test (10%).

INSTRUCTION LANGUAGE: Bulgarian

BIBLIOGRAPHY:

1. Иванов Р., Михов Г., Електронни цифрови устройства и системи II част, С., Техника 1990.
2. Уилямс Г.Б., Отладка микропроцессорных систем, М., Энергоатомиздат, 1988.
3. Рафикузаман М., Микропроцессоры и машинное проектирование микропроцессорных систем, М., МИР, 1988.
4. Щелкунов, И. И., Дианов А. П., Микропроцессорные средства и системы, М., Радио и связь, 1989.
5. Hitz К., Tabak D., Microcontrollers - Architecture, Implementation and programming, McGraw Hill, 1992.

DESCRIPTION OF THE COURSE

Name of the course Power supplies	Code: BE36	Semester: V
Type of teaching: Lectures, laboratory work, Seminars, Course project	Hours per week: L – 2 hours, S – 1 hours, LW – 2 hours	Credits: 7

LECTURER:

Assist. Prof. Ph.D Georgi Bonev – dep. of Electronics, Technical University of Sofia, branch Plovdiv, tel.: +35932692814, email: gbonev@engineer.bg

COURSE STATUS IN THE CURRICULUM: Compulsory course for the students of specialty "Electronics", degree "Bachelor".

AIMS AND OBJECTIVES OF THE COURSE: The course “Power supplies” is intended to acquire theoretical, practical knowledge and skills in the field of the power supply devices and their application. The students acquire knowledge about modern trends in the circuitry of power supplies and the methods of their control.

DESCRIPTION OF THE COURSE: The purpose of the lectures and the laboratory exercises is to give to the students an idea of the principle of operation and the modes of operation of the power supply devices, and to obtain practical experience with such devices.

PREREQUISITES: Knowledge of the following disciplines: Theoretical Electrical Engineering and Electrical Measurements.

TEACHING METHODS: Lectures and laboratory exercises in properly equipped laboratories. For the laboratory exercises are developed methodical manuals and templates on topics, covered in the lectures. Software packages are used to model and simulate SPICE. Software packages are used for SPICE modeling and simulating.

METHOD OF ASSESSMENT: A written exam and solving a problem.

INSTRUCTION LANGUAGE: Bulgarian

BIBLIOGRAPHY:

1. Stefanov N.Y., Power Supplies, S. Technika, 1985.
2. Stefanov N.Y., Handbook of Power Supplies., Technika, 1985.
3. Krastev G., Handbook for laboratory exercises in industrial electronics and design of industrial electronics, S. Technika, 1978.
4. Stefanov N.Y., A guide to lab work of Power Supplies., Technika, 1985.
5. Китаев В.Е. и колектив, Расчет источников электропитания устройств связи, учебное пособие, М., Р и С, 1993.
6. Brown, Marty, Power supply cookbook“ 2th ed., Newnes, Copyright © 2001 by Butterworth–Heinemann A member of the Reed Elsevier group ISBN 0-7506-7329-X.
7. „Handbook of batteries“, David Linden, Thomas B. Reddy, 3d ed., McGraw-Hill, ISBN 0- 07-135978-8.
8. Stefanov N.Y., Design Guide for Power Supplies, Technika, 1988.

9. Dinkov E., Sv. Ivanov, M. Dinkova – A guide to lab work on specialized power supplies, TU Sofia, branch Plovdiv, 1999 г.

DESCRIPTION OF THE COURSE

Name of the course Electronic measurement systems	Code: BE37	Semester: 5
Type of teaching: Lectures and laboratory work	Lessons per week: L – 2 hours; LW – 2 hours.	Credits: 5

LECTURER:

Assoc. Prof. Ph.D.. I. Rachev, Department of Electronic, Technical University of Sofia – Plovdiv branch, ph., 032/ 959 718, e-mail: ivr@tu.plovdiv.bg

COURSE STATUS IN THE CURRICULUM:

The course is compulsory for the students specialty “Electronics” for educational and qualifications degree “bachelor”.

AIMS AND OBJECTIVES OF THE COURSE:

The aim of the course is to give the students knowledge of electronic measurement systems and instrumentation. It allows the students to develop instrumentation, data acquisition and analysis software using modern equipment and software tools.

DESCRIPTION OF THE COURSE:

The base problems, which are discussed in the course are the operating principles of measurement hardware, errors, standards, current and voltage measurement, compensating techniques, oscilloscopes and computer based measurement systems and virtual instruments.

PREREQUISITES:

Electrical Engineering Theory, Semiconductor devices, Signals and systems Analogue electronics, Electrical measurements.

TEACHING METHODS: lectures, tutorials, laboratory work, protocols.

METHOD OF ASSESSMENT: Two-hour assessment at the end of the semester (80 %) and laboratory work (20 %).

INSTRUCTION LANGUAGE: Bulgarian

BIBLIOGRAPHY :

1. Stoyanov, I.: Electronic Measurement Systems. Technical University of Sofia, Sofia, 2000.
2. Stefanova, K. et al, Electronic Measurement Systems – Laboratory works, Plovdiv, 1995.
3. Comer, D., *Fundamentals of Electronic Circuit Design*, NY, John Wiley & Sons, 2003.

DESCRIPTION OF THE COURSE

Name of the course Practicum in circuits design	Code: BE38	Semester: V
Type of teaching: Laboratory work	Lessons per week: LW-2 hours	Number of credits: 2

LECTURER:

Head Assistant Rosen Bozhilov, PhD., (FEA), Dept. of Electronics, Technical University of Sofia - Branch Plovdiv, e-mail: rossen_chi@abv.bg

COURSE STATUS IN THE CURRICULUM: Compulsory for the Bachelor's degree students majoring in "Electronics" at the Faculty of Electronic and Automation.

AIMS AND OBJECTIVES OF THE COURSE: The aim of the “Practicum in circuits design” training is to provide the students with practical skills and engineering experience to realize a specific electronic device suitable for their future work.

DESCRIPTION OF THE COURSE: By nature and specifics the classes comprise elements of both laboratory work and course design projects within a school year. They encompass basic for the engineering practice activities: techno-economic assignment; literature review; analysis of possible solutions; dimensioning of circuit diagrams; construction; functional testing of the realized devices; and techno-economic standardization.

PREREQUISITES: Fundamental knowledge in the courses: Theoretical electrical engineering, Signals and systems, Semiconductor devices, Analogue Electronics, Electronic measurement systems.

TEACHING METHODS: Laboratory work, consisting in practical realization of electronic devices. The leading lecturer works collectively and on an individual basis with each of the students depending of the stage of realization of the particular tasks.

METHOD OF ASSESSMENT: After submitting a functioning device, the students receive the lecturer's signature.

INSTRUCTION LANGUAGE: Bulgarian

BIBLIOGRAPHY: (in Bulgarian)

1. Towers, Thomas, Transistor Selector, Technica press, Sofia 1998;
2. Zlatarov V. Donevski at al. “Analog electronic circuits and systems”, Technica Publishing House, Sofia, 1995;
3. Konov K., Pulse and digital circuits with integral TTL elements, I and II part, Technica press, Sofia 1998;
4. Clayton G., Operational Amplifiers, Technica press, Sofia 2002.

DESCRIPTION OF THE COURSE

Name of the course: Marketing	Code: BE39.1	Semester: V
Type of teaching: Lectures (L), Seminar exercises(S)	Lessons per week: L– 2, S – 1	Number of credits: 4

LECTURERS:

Assistant Professor Elena Zlatanova, Ph.D.; e-mail: elyzlatanova@abv.bg, Hristina Dailianova; e-mail: dailianova@abv.bg

COURSE STATUS IN THE CURRICULUM: compulsory school subject for full-time students of Industrial management at the Faculty of Mechanical Engineering – TU – Sofia, Plovdiv Branch, for the qualification degree Bachelor of Science.

OBJECTIVES OF THE COURSE: To give the students knowledge of the theoretical, organizational, managerial methodological and practical aspects in planning and conducting marketing activities.

COURSE DESCRIPTION: Main topics: Marketing basics; Marketing environment; Marketing concepts; Marketing research; Product and product policy; Prices and pricing policy; Segmentation and market positioning; Distribution and logistics; Internet marketing; Advertising; Public relations.

PREREQUISITES: Basic knowledge of economics, sociology, basics of management is required.

TEACHING METHODS: Lectures and seminar exercises, aided by audio, video and multimedia technique. Active methods of teaching, involving the students, are used.

METHODS OF ASSESSMENT: Examination (written).

LANGUAGE: Bulgarian

BIBLIOGRAPHY:

- 1.Благоев Веселин, Маркетинг, С, InterndtionalUniversity,София 2003
- 2.Бърд Дрейтън, Директен маркетинг, Б, 1993
- 3.Волф Ябок, Маркетинг, С, 1995
- 4.Джефкинс Ф., Въведение в маркетинга, рекл. И Пр, С, 1993
- 5.Доганов Димитър, Рекламата каквато е, Принсепс,София, 2000
- 6.Желев Симеон, Маркетингови изследвания, Тракия-М,София, 2002
- 7.Карас Честър, Търговските преговори...,ВТ, 1993
- 8.Кафтанджиев Христо, Хармония в рекламната комуникация,Сиела, София, 2008
- 9.Котлър Филип, Маркетинг 3.0, София, 2010
- 10.Кошник Волфганг, Световен речник по маркетинг и реклама, Б, 1997.
- 11.Льодюк Робер, Мениджмънт на рекламата, С, 1992
- 12.Маринова Елена, Маркетинг, продукт, реклама, В,1992
- 13.Маринова Елена, Маркетингов план, В,1996
- 14.Оксли Харолд, Принципи на пбблик рилейшънс, Б, Делфин прес, 1993
- 15.Прайд У., Маркетинг концепции и стратегии, С, 1994

16. Риивс Росър, Реализмът в рекламата, В, 1995
17. Стойков Любомир, Фирмена култура и комуникация, УНСС, С, 1995
18. Фентън Джон, Как се продава срещу конкуренцията, С, 1992

DESCRIPTION OF THE COURSE

Name of the course: Management	Code: BE 39.2	Semester: V
Type of teaching: Lectures, Seminar exercises	Lessons per week: L – 2, SE– 1	Number of credits: 4

LECTURERS:

Chief assistant prof. Desislava Shatarova, PhD, tel. 659 716; e-mail: desislava_shatarova@abv.bg; Sofia Technical University – Branch Plovdiv

COURSE STATUS IN THE CURRICULUM: Elective course for "Electrical Engineering" Bachelor students.

AIMS AND OBJECTIVES OF THE COURSE: Learning the basic theoretical concepts of management, as well as the main elements of production management, students will be able to apply the approaches, methods and techniques for analysis and management of industrial systems, subsystems, enterprises and companies.

COURSE DESCRIPTION: Main topics: Basic functions of management in industrial enterprises: planning, organizing, motivation and control, Human resource management, Management decisions, Building an effective teamwork.

PREREQUISITES: Fundamentals of management, Humanities, mathematical, engineering, technological, managerial and technical disciplines.

TEACHING METHODS: Lectures and seminars supported by audio, video and multimedia presentations. Active teaching methods, constantly engaging the students, are used.

METHODS OF ASSESSMENT: The level of achieving the goal of the course is monitored by ongoing assessment, expressed in a grade, formed by three components: two control tests with a weight of 0.35 each and evaluation of the performance during the seminars by a factor of 0.30.

LANGUAGE OF INSTRUCTION: Bulgarian

BIBLIOGRAPHY:

Основна литература:

1. Ангелов, А., Основи на управлението, "Полина комерс", София, 2009;
2. Иванов, Ив. Основи на мениджмънта, "Макрос", Пловдив, 2003;
3. Мирчев А., Производствен Мениджмънт, Princesp,1996;
4. Станчева А. ,Основи на управлението ,СТЕНО, 2006;
5. Илиев Й., и др.,Организация на индустриалната фирма, университетско издателство „ Стопанство,, 2002;
6. Савов, В., Основи на управлението, Университетско издадетелство "Стопанство", София, 1996;
7. Христов, Ст., Бизнес мениджмънт, Университетско издателство "Стопанство", София, 1998;
8. Армстронг, М., Преуспяващият мениджър, "Делфин-прес", Бургас, 1993;
9. Мескон, М., Альберт М., Хедоури, Фр., Основы мениджмънта, "Дело",Москва, 1992;

10. Донъли, Дж. Х., Гибсън Дж.Л., Иваничевич, Дж.М., Основи на мениджмънта, София, 1997;
11. Дракър, П., Управление на организации с идеална цел: "Принципи и практика", Фондация "София", София, 1997;
12. Griffin, R.W., Managementq Texas A&M University, 1996;
13. Appleby K., Modern Business administration, Fifth Editionq Pitman Publishing, 1991.

Допълнителна литература:

1. Дракър П. Ефективното управление, Класика и стил, С. 2002.
2. Ташев А. и др. Мениджмънт на човешките ресурси, ТУ – София, филиал Пловдив 2004.
3. Ташев, Гигова, Михова Ръководство за упражнения по МЧР, ТУ – София, филиал Пловдив 2007.

DESCRIPTION OF THE COURSE

Course Title English Language	Code: BE40	Semester: V
Type of Teaching: seminars	Contact hours per week: S – 2 hours	Number of credits: 0

<u>LECTURERS:</u>	Telepho ne:	E-mail:
Sen. Lect. Penka Taneva – Kafelova (FME, English)	0895587 246	taneva@gmail.com
Sen. Lect. Nadya Popova (FME, English)	0895587 580	popovanadia@yahoo.com
Sen. Lect. Konstantina Nyagolova (FME, English)	0895587 577	konstantinanik@yahoo.com
Sen. Lect. Anet Arabadjieva (FME, English)	0892231353	anet2003@abv.bg
Lect. Nadezhda Geshanova (FME, English)	088931 4932	nadya_cmf@hotmail.com
Lect. Daniela Valeva (FME, English)	0897899039	daniela.valeva89@gmail.com

COURSE STATUS IN THE SYLLABUS: Compulsory for the students majoring in Electronics at the Faculty of Electronics and Automation, Bachelor's Degree.

COURSE OBJECTIVES: Targeted at further developing of students' knowledge and practical skills in the specific foreign language.

COURSE DESCRIPTION: During the first three semesters the foreign language teaching is in either of two languages of equal academic status: English or German, and during semesters 4 and 5 only English is taught. The language training is carried out at the respective levels determined through placement tests. No AB groups are formed. Apart from general English, the curriculum includes English for specific purposes in accordance with the students' major subject.

PREREQUISITES: The curriculum presumes the minimum of English language knowledge and skills acquired at secondary school.

TEACHING METHODS: Seminars using modern technical equipment: language lab, audio and video, as well as multimedia.

METHODS OF TESTING AND EVALUATION: Evaluation is based on continuous assessment and one test at the end of semester 5.

LANGUAGE OF INSTRUCTION: English

LITERATURE RECOMMENDED:

1. *New Headway English, OUP*
2. *Speak Out, Pearson*
3. *Technical English 1, 2, 3, 4, David Bonamy, Pearson*
4. *English for Computing, OUP*
5. *English for Electrical Engineering, OUP*
6. *English for Electrical Engineering, Alma Mater International, 2001*
7. *English for Computing, Alma Mater International, 2001*

8. *Reader for students of Mechanical Engineering and Electronics, Plovdiv, 1990*

9. *Intelligent Business 1, 2, 3, 4*, Irene Barall, Nikolas Barall, Pearson
10. *ProFile1 Pre-intermediate*, Jon Naunton, Oxford University Press, 2005
11. *ProFile2 Intermediate*, Jon Naunton, Oxford University Press, 2005
12. *Business Basics*, David Grant and Robert McLarty, Oxford University Press.
13. *Business Objectives*, Vicki Hollett, Oxford University Press
14. *Business Opportunities*, Anna&Terry Phillips, Oxford University Press
15. *Business Challenges*, Nina O'Driscoll, Fiona Scott-Barret, Longman
16. *Quick Launch into English*, Ivan Shotlekov, Penka Taneva, PUPress
17. *Developing Business Contacts*, OUP
18. *How To Be British*, Magazine, John Hoover, 1998

DESCRIPTION OF THE COURSE

Name of the course POWER ELECTRONICS	Code: BE41	Semester: VI
Type of teaching: Lectures, laboratory work	Lessons per week: L – 2 hours; LW – 2 hours	Number of credits: 5

LECTURER:

Assoc. Prof. PhD Tsvetana Grigorova, (FEA), e-mail: c_gr@tu-plovdiv.bg, Technical University of Sofia, Branch Plovdiv

COURSE STATUS IN THE CURRICULUM:

Compulsory for the students specialty "Electronics" BEng programme of FEA.

AIMS AND OBJECTIVES OF THE COURSE:

The aims and objectives of the course are to teach students on the types of power electronic converters, their basic power circuits and control systems. The students learn the modern circuits and theory, methods for analyses and design of power electronics circuits.

DESCRIPTION OF THE COURSE:

During the course are discussed the characteristics, parameters and features of power electronic converters: controlled single phase and three phase rectifiers, inverters – current fed, voltage fed, resonant. The principles of operation, methods for analyses and design are described. Electromagnetic processes are analyzed in all the converter circuits. Functional block-diagrams and principles of control systems are explained.

PREREQUISITES:

Knowledge on “Theory of electrical engineering”, “Electronic and semiconductor devices”, “Power supplies” and “Analogue circuits”.

TEACHING METHODS:

The training is based on lectures, laboratory works and course design. The target of laboratory works is to expand the student knowledge from a practical point of view. The course design gives the opportunity for student’s own decision and solving the specific practical problem.

METHOD OF ASSESSMENT:

Written exam at the end of the sixth semester. The final mark is formed 20% from the laboratory work and 80% from the written exam.

INSTRUCTION LANGUAGE: Bulgarian.

BIBLIOGRAPHY:

1. Бобчева, М., С.Табаканов П.Горанов. Преобразователна техника;
2. Бобчева, М., П.Горанов, Г.Кънов, Ц. Григорова, Ръководство за лабораторни упражнения по основи на преобразователната техника;
3. Mohan, N. J.Undeland, W.Roobbins. Power Electronics. John Wiley&Sons. NY. 1995.

4. Бобчева, М., Г.Малеев, П.Горанов, Е.Попов. Ръководство за проектиране на силови електронни устройства;

5. INTERNET sites.

E-learning:

https://lark.tu-sofia.bg/static/Thyristors_and_Power_Diodes/local/html/ https://lark.tu-sofia.bg/static/Power_transistors/pt/html/

https://lark.tu-sofia.bg/static/Line_commuted_converters/lcc/html/ https://lark.tu-sofia.bg/static/Inverters_and_Frequency_converters/ifc/html/

DESCRIPTION OF THE COURSE

Name of the course Quality and Reliability in	Number: BE42	Semester: VI
Type of teaching: Lectures, Laboratory work, Seminars	Lessons per week: L–2 hours; LW–1 hour; S– 1 hour	Number of credits: 5

LECTURER: Assoc. Prof. Boryana Pachedjieva, PhD., (FEA) - tel.: 659708 e-mail: pachedjievaa@yahoo.com Technical University of Sofia, branch Plovdiv

COURSE STATUS IN THE CURRICULUM:

Compulsory for the student's specialty "Electronics" BEng programme of FEA.

AIMS AND OBJECTIVES OF THE COURSE:

To provide the students with good overall knowledge of the basic requirements to the quality and reliability of today's electronic equipment, organization of the control process, basic features of the statistical control as well as the data collection for quality and reliability evaluation and use them in solving different engineering tasks.

DESCRIPTION OF THE COURSE:

Main topics: Quality and reliability indicators, quality management systems, statistical methods for quality control of electronic products, assurance of the quality of the products throughout the life cycle: design, development and mass production of the products, testing methods of reliability by applying different probability laws.

PREREQUISITES:

Mathematics I - III, Semiconductor Elements, Analog Circuits, Digital Circuits, Measurements in Electronics.

TEACHING METHODS:

Lectures (multimedia projector) and additional text materials; thematically web site; seminars and laboratory works (based on instructions) with a tutorial for every theme. Seminar and Lab sessions are organized in a way stimulating the students' team work. They are encouraged to arrange the test results in lab reports. Individual and group tasks are frequently being solved.

METHOD OF ASSESSMENT:

The final grade is based on the evaluation of two written tests (2 x 30% of the assessment of the test) and the assessment during the semester (40% = 20% of the laboratory + 20 % of the assessment from seminars). .

TEACHING LANGUAGE: Bulgarian

RECOMMENDABLE LITERATURE:

1. Andonova A., Ph. Philippov, A, Testing and reliability of microelectronic devices, TUS, 1998 (in Bulgarian);
2. Andonova A. et al., Guidelines for laboratory and seminars on quality and reliability of electronic equipment, TUS, 2008 (in Bulgarian).
3. Birolini A., Reliability Engineering, Berlin, Springer, 2004.
4. Krishnaiah P. R., C. R. Rao, Quality and Reliability, John Wiley & Sons, 2004.

5. Chan A., P. Englert, Accelerated Stress Testing Handbook, New York, IEEE Press, 2001.
6. Shelemyahu Zacks, Introduction to Reliability Analysis Probability Models and Statistics Methods, John Wiley & Sons, 2004.
7. Hoang Pham, Recent Advantages in Reliability and Quality Engineering, Inc., 2005.
8. Hobbs G.K., Accelerated Reliability Engineering: HALT and HASS, John Wiley & Sons, 2000.

DESCRIPTION OF THE COURSE

Name of the course: Microelectronics	Code: BE43	Semester: VI
Type of teaching: Lectures and laboratory work	Lessons per week: L – 2 hours, LW-2hour	Number of credits: 5

LECTURER:

Assoc. Professor, Ph. D. eng. Anton Lechkov, tel.659766; E-mail: lechkov.a@gmail.com
Technical University of Sofia - Branch Plovdiv, Department of Electronics

COURSE STATUS IN THE CURRICULUM:

Binding on educational discipline for students of subject “Electronics”, educational-qualification degree “Bachelor”.

AIMS AND OBJECTIVES OF THE COURSE: Introduction to the basic technological processes in microelectronics; basic microelectronic elements; basic knowledge of microelectronic circuits and Microelectromechanical Systems (MEMS).

DESCRIPTION OF THE COURSE:

Basic subjects: **Introduction:** Main characteristics. Basic concepts. Stages of development. Materials in microelectronic production. **Technological processes in microelectronics:** Classification of technological processes. Forming semiconductor junctions and layers. Thin insulating and conducting layers. Cleansing and removing thin layers. Transfer the topographic image. Assembly of elements. **Microelectronic elements:** Classification and structure. Hybrid Integrated Circuits. Bipolar and MOS elements. **Microelectronic circuits:** Basic elements. Analog Integrated Circuits. Digital integrated circuits. Memory - types, organization. Specialized modules. Microelectromechanical Systems (MEMS): General Information. MEMS sensors and actuators.

PREREQUISITES:

Courses of Physics, Semiconductor elements, analog circuits, electronics measurements.

TEACHING METHODS: Lectures (using multimedia), laboratory exercises

METHOD OF ASSESSMENT:

The final grade is based on the evaluation of two written tests (2 x 40% of the assessment of the test) and the assessment during the semester (20% of the laboratory).

INSTRUCTION LANGUAGE: Bulgarian.

BIBLIOGRAPHY:

1. Атанасов, А. С., Основи на микроелектрониката, С., Техника 1987;
2. Вълков, С. А., Микроелектронна схемотехника, София, Техника 1987;
3. Филипов, Ф. И., Конструкция и технология на полупроводникови прибори, С., Техника 1989;
4. Razavi, B., Fundamentals of Microelectronics, 2007, ISBN / ASIN: 047007292X;
5. Ефимов, И. Е., Козыр И. Я. Основы микроэлектроники: Учебник. «Лань», 2008;

6. Степаненко, И., Основы микро-электроники, Москва, 2001;
7. Campbell, St., The Science and Engineering of Microelectronic Fabrication, Oxford University Press, 2001;
8. MEMS Introduction and Fundamentals, © 2006 by Taylor & Francis Group, LLC.

DESCRIPTION OF THE COURSE

Name of the course: Business ethics	Code: BE44.1	Semester: VI
Type of teaching: Lectures	Lessons per week: L – 2	Number of credits: 4

LECTURERS:

Associate Professor Atanaska Teneva, PhD, email: atanaska_teneva@abv.bg, Hristina Dailianova, e-mail: dailianova@abv.bg

COURSE STATUS IN THE CURRICULUM: The course “Business ethics” is optional for the Bachelor’s degree students in Electronics, Faculty of Electronics and Automation.

AIMS AND OBJECTIVES OF THE COURSE: The students will be acquainted with the moral dimensions of business relationships and the role of business standards in the specifics of the business social and corporate environment.

COURSE DESCRIPTION: The course creates basic knowledge, skills and sensitivity for the human dimensions in management. The focus is on the moral dimensions and good business practices. It is justified by the necessity of ethical expertise balancing between professional and juridical competence.

TEACHING METHODS: Lectures with presentations, discussions with active participation of students after preparation.

METHODS OF ASSESSMENT: On going assessment with 2 control tests, each contributing 50% to the final mark.

LANGUAGE OF INSTRUCTION: Bulgarian

BIBLIOGRAPHY:

1. Сотирова, Д., Бизнес етика, София, 2005
2. Драмалиева, В., Справедливостта в етиката и бизнес етиката, София, 2001
3. Матеев, Г., Стопанска етика, София, 2001
4. Сабат, АМ, Бизнес етикет, София, 2006

DESCRIPTION OF THE COURSE

Name of the course: Industrial legislation	Code: BE 44.2	Semester: VI
Type of teaching: Lectures, Seminar exercises	Lessons per week: L – 2	Number of credits: 4

LECTURER:

Assoc. Prof. Jur. engineer Ivan Nikolov Shopov, PhD, tel. 0885537762, e-mail: ivan_chopov@abv.bg, Sofia Technical University – Branch Plovdiv

COURSE STATUS IN THE CURRICULUM: Elective course for full-time students majoring in Electronics at the Faculty of Electronics and Automation (FEA) of TU-Sofia Branch of Plovdiv for the Bachelor's Degree.

AIMS AND OBJECTIVES OF THE COURSE: The course "Industrial legislation " aims to give students the necessary basic knowledge of the law and legislation in the field of industrial property, the legal protection of its objects as intangible goods and their market realization through the implementation of effective patent-licensing policy in the conditions of commodity market relationships and competition.

COURSE DESCRIPTION: The course begins with a brief introduction to GTL (General Theory of Law), Intellectual and Industrial Property Law, whereby students are introduced to its nature, functions, basic concepts, system and sources. Emphasis is placed on:

- the creation and use of industrial property objects such as inventions, utility models, industrial design, including know-how, in the process of developing and implementing new products and technologies;
- protection of the rights of the authors of industrial property objects and the terms and conditions for their legal protection at home and abroad;
- the legal and economic results of the introduction and use of the intangible objects in production and their licensing realization as the main form of technological transfer;
- implementation of an effective patent licensing policy in relation to national and international markets, etc.

PREREQUISITES: Not required.

TEACHING METHODS: The lectures are presented with the help of Power point presentations. The seminars are used for the validation of the material by solving legal cases, conducting technical studies, etc.

METHODS OF ASSESSMENT: Written test at the end of the fourth semester or an intermediate test and abstract.

LANGUAGE OF INSTRUCTION: Bulgarian

BIBLIOGRAPHY:

1. Patent and Utility Model Registration Act, 1993;
2. The Trade Marks and Geographical Indications Act, 1999;

3. Industrial Design Act, 1999;
(http://www1.bpo.bg/index.php?option=com_content&task=view&id=75&Itemid=122)
4. Law on Copyright and Related Rights - SG, iss. 56/1993;
5. Law on Protection of Competition - SG. issue 102 of 28/11/2008;
6. Dzhelepov / Stefanov: Patent Licensing Exercise Manual, TU-Sofia / Inform - Intellect 1990;
7. Sarakinov, G.: Patent Law in the Republic of Bulgaria, SIBI, Sofia 2010;
8. Kamenova, Ts .: Copyright, ISL (Institute for the State and the Law) at BAS (Bulgarian Academy of Sciences), Sofia 1999.

DESCRIPTION OF THE COURSE

Name of the course Electronic regulators	Code: BE45	Semester: VI
Type of teaching: Lectures and laboratory work	Lessons per week: L – 2 hours, LW-2 hours	Number of credits: 5

LECTURER:

Assoc. Prof. Ph.D.. Svetoslav Ivanov (FEA), tel.: 032 659720, email: bluflam@tu-plovdiv.bg Technical University of Sofia, branch Plovdiv.

COURSE STATUS IN THE CURRICULUM: Compulsory for the students specialty "Electronics " of Faculty of Electronics and Automation , educational-qualification degree "Bachelor".

AIMS AND OBJECTIVES OF THE COURSE: Students should be able to apply the laws of regulation in the design of electronic regulators that are used in industry, communications, energy, transport and other areas, as well as to choose the appropriate regulation law according to the assigned transition processes of the closed regulation system.

DESCRIPTION OF THE COURSE: Main themes: Identification of the objects of regulation; Position regulators; Proportional and proportionally-integrated law for regulation; Proportional-differential regulation law; Proportional Integral-Differential law for regulation; Methods for regulating the speed of a DC motor; Frequency speed regulation of an asynchronous motor; Vector control of an asynchronous motor; Spatial vector vector control of PWM; Digital thermometer and thermostat; Digital control systems; Tracking and memorizing systems; Numerical design with approximation; Choice of regulation law; Adjusting the controller parameters according to the requirements for the transition process.

PREREQUISITES: Analog Circuit Engineering, Digital Circuits, Transformation Engineering, Sensor Technology, Theory of Automatic Control and Microprocessor Engineering.

TEACHING METHODS: Lectures, using slides, case studies, laboratory and course work, work in teams, protocols and course work description preparation and defence.

METHOD OF ASSESSMENT: Written exam at the end of the semester (70%), laboratories (20%), course work - one off assignment (10%).

INSTRUCTION LANGUAGE: Bulgarian

BIBLIOGRAPHY:

1. Ivanov S., Electronic regulators, Technical University of Sofia, 2008;
2. Kaloyanov G., Automation of production and control, S.,T.,1992;
3. Ivanov I., Relay electronic regulators,S.,T.,1978;
4. Naplatanov K., Hinov H., Automation of technological processes, S.,T.,1987;
5. Klashe G. Hofer R., Industrial electronic circuits, S.,T.,1984;
6. Ivanov S., Vasileva S., Laboratory exercises manual on Electronic Regulators, Plovdiv, 2001.

DESCRIPTION OF THE COURSE

Name of the course Computer Systems	Code: BE46	Semester: 6
Type of teaching: Lectures and laboratory work	Lessons per week: L – 1 hours; LW – 1 hours	Number of credits: 4

LECTURER:

Assoc. Prof. Ph.D. A. Kostadinov, Computer systems and Technologies Department, Technical University of Sofia, Plovdiv branch, Phone: + 359 32 659 726 email: kostadat@tu-plovdiv.bg

COURSE STATUS IN THE CURRICULUM: A compulsory subject for the Electronic Engineering students admitted to the Bachelor's program. Computer Systems and Technologies Department belongs to the Electronics and Automation Faculty (EAF). The EAF is a part of the Technical University – Sofia, Plovdiv branch.

AIMS AND OBJECTIVES OF THE COURSE: The main goal of the above-mentioned subject is obtaining of a basic knowledge for the electronic components and interfaces building any computer systems (CSs). The students have to apply this knowledge for analyzing of different CSs. At the end of the course, the students will learn working principles of various hardware components applicable to the computer system, will able to compare and to classify these computer components using different parameters. The students will have possibilities to analyze different CSs.

DESCRIPTION OF THE COURSE: The main topics concern: Floating point numbers representation. IEEE 754 standard; The basic building blocks of computer system; Microprocessors used in computers. Introduction to multi-core processors; The memory hierarchy pyramid. Main memory; Magnetic, optical and sequentially accessed memories. Virtual memory; Introduction to computer peripheral interfaces; System and application software;

PREREQUISITES: BE35 Microprocessor systems design.

TEACHING METHODS: Lectures and laboratory exercises on the above-mentioned topics including some tasks which have to be executed by the students during labs as well as self assigned tasks.

METHOD OF ASSESSMENT: The final mark consists of two parts. The major part of the mark is based on end of term evaluation (80%). The second part of the mark is derived from the laboratory exercises (20%).

INSTRUCTION LANGUAGE: Bulgarian

BIBLIOGRAPHY:

1. Romansky R., Fundamentals of computer systems (in Bulgarian), Union of scientists in Bulgaria, Sofia, 2002.
2. Romansky R., Nedev S., Guide to the laboratory exercises in fundamentals of computer systems (in Bulgarian), King, Sofia, 2005.
3. Rogler H., Introduction to computer systems, 3 edition, Kendall Hunt Publishing, US, 2018.
4. Borovska P., Computer systems (in Bulgarian), Siela, Sofia, 2012.
5. Below C Level: An Introduction to Computer Systems
(<http://heather.cs.ucdavis.edu/~matloff/50/PLN/CompSysBook.pdf>)