DESCRIPTION OF THE COURSE

Name of the course **Circuitry for impulse and mixed signals**	Code: **MpE41**	Semester: **I**
Type of teaching: **Lectures, Seminar exercises and laboratory work**	Semester hours: **L – 30 hours, SE – 15 hour LW-30 hours**	Number of credits: **6**

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 course for students majoring in "Electronics", educational qualification degree "Master -2 years /from prof. Bachelor/ "

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.
3. Yu. Erofeev, Fundamentals of impulse technology, ed. High school, 1979
2. K. Konov, Impulse Circuits, (Manual on Electronic Circuits, Part VII), S. Tehnika, 1984.
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 ProcessingFoundations, Massachusetts Institute of Technology & Boston University, Cambridge University Press 2014

DESCRIPTION OF THE COURSE

Name of the course **Microprocessor techniques**	Code: **MpE42**	Semester: **I**
Type of teaching: Lectures, laboratory work, seminar exercise	Semester hours: L – 30 hours; LW – 30 hour, SE- 15 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: Compulsory course for students majoring in "Electronics", educational qualification degree "Master -2 years /from prof. 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., Отлатка микропроцессорных систем, М., Энергоатомиздат, 1988.
3.Рафикузаман М., Микропроссоры и машинное проектирование микропрojессорных систем, М., МИР, 1988.
4.Щелкунов, И. И., Дианов А. П., Микропроцессорные средства и системы, М., Радио и связь, 1989.
5.Hitz K., Tabak D., Microcontrollers - Architectute, Implementation and programming, McGraw Hill, 1992.

DESCRIPTION OF THE COURSE

Name of the course **Power supplies**	Code: **MpE43**	Semester: **I**
Type of teaching: **Lectures,laboratory work, Seminhars, Course project**	Semester hours: **L – 30 hours, S – 15 hours, LW – 30 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 students majoring in "Electronics", educational qualification degree "Master -2 years /from prof. 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 pakages are used for SPICE modeling and simuling.

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 Plovidv, 1999 г.

DESCRIPTION OF THE COURSE

Name of the course **Electronics circuits**	Code: **MpE44**	Semester: **I**
Type of teaching: Lectures, laboratory and seminar work, Course work	Semester hours: L – 30 hours; LW – 30 hours;	Number of credits: **6**

LECTURERS:

Prof. Ph.D. Galidiya Petrova (FEA), Dept. of Electronics – tel.: 659 574,
e-mail: gip@tu-plovdiv.bg,
Assistant Prof. Dimitar Yankov (FEA), Technical University of Sofia, branch Plovdiv

COURSE STATUS IN THE CURRICULUM: Compulsory course for students majoring in "Electronics", educational qualification degree "Master -2 years /from prof. Bachelor/ "

AIMS AND OBJECTIVES OF THE COURSE: The aim of the course is to provide students with basic knowledge on theoretical and practical aspects of digital and pulse circuits together with the methods for their synthesis and analysis.

DESCRIPTION OF THE COURSE: The main topics concern: Logical function and methods for description and minimization; Digital circuits and methods for their synthesis and analysis together with basic principles for building more complex digital units; Basic elements of digital electronics and types of logic families - TTL, CMOS, BiCMOS, I2L, with their parameters and characteristics; Indicator elements and digital circuits for their control; Design and working principles of relaxation circuits and shapers, mono-vibrators and multi-vibrators, practical circuits with integral timer 555, Schmitt trigger, etc.; DAC, ADC and S/H devices – their basic characteristics and operation;
With seminar and laboratory work it is intended to provide the students with practical skills for designing, investigating, testing and evaluating the performance of digital circuits and devices.

PREREQUISITES: Good fundamental knowledge in the courses: Theoretical Electrotechnic, Semi-conductor electronic devices, Signals and systems, Analogue electronics.
TEACHING METHODS: Lectures and seminar work with solving practical problems, and laboratory work with protocols containing experimental results.

METHOD OF ASSESSMENT: Two hours written exam at the end of semester with solving practical problems (75%), laboratory works (15%) and course work for design of digital circuit with determined functional application (10%).

INSTRUCTION LANGUAGE: Bulgarian

BIBLIOGRAPHY:

1. Mihov G., Digital electronics for BSc students in Electronics, Technical University – Sofia press, 1998;
2. Spasov, Gr., D. Petrova, A. Kostadinov. Digital and microprocessor technology. TU-Sofia, 2019;
3. Konov K., Pulse and digital circuits with integral TTL elements, I and II part, Technica press, 1988;
4. Storey Neil. Electronics, A System Approach, UK Addison Weslly, 1992.

DESCRIPTION OF THE COURSE

Name of the course **Electronic measurement systems**	Code: **MpE45**	Semester: **I**
Type of teaching: **Lectures and laboratory work**	Semester hours: **L – 30 hours; LW – 30 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:
Compulsory course for students majoring in "Electronics", educational qualification degree "Master -2 years /from prof. 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, witch 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 all, 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 **POWER ELECTRONICS**	**Code: MpE46**	Semester: **II**
Type of teaching: **Lectures, laboratory work**	Semester hours: **L – 30 hours; LW – 30 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 course for students majoring in "Electronics", educational qualification degree "Master -2 years /from prof. Bachelor/ "

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.Табаков П.Горанов. Преобразувателна техника;
2. Бобчева, М., П.Горанов, Г.Кънов, Ц. Григорова, Ръководство за лабораторни упражнения по основи на преобразувателната 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 **Analog electronics**	Code: **Code: MpE47**	Semester: **II**
Type of teaching: Lectures, seminar and laboratory works	Semester hours: L – 30 hours; SW– 15hour; LW – 30 hours.	Credits: **7**

LECTURER:

Assoc. Prof. PhD 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:

Compulsory course for students majoring in "Electronics", educational qualification degree "Master -2 years /from prof. Bachelor/ "

AIMS AND OBJECTIVES OF THE COURSE:

The course introduces in the fundamentals of electronic amplifiers. The aim of the course is to give the students knowledge of analysis and design of the analog systems.

DESCRIPTION OF THE COURSE: The basics of the analysis and design of the analog circuits and systems are covered: Schematics and principle of operation of the basic amplifier circuits with bipolar and MOS transistors, Principle of the feedback, Basic circuits for bipolar and MOS analog integrated circuits, Operational amplifiers (op amps) – basic definitions, electrical characteristics, parameters and op amps applications, Active filters, Power amplifiers and Signal oscillators.

PREREQUISITES: Electrical Engineering Theory, Semiconductor devices, Signals and systems.

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: Bulgarien

BIBLIOGRAPHY :

1. Рачев И., *Лекционни записки по аналогова схемотехника – I част*, С, изд. на ТУ-София, 2011; 2. Златаров В., Доневски и др., *Електронни аналогови схеми и устройства*, С., Техника, 1987, 95.; 3, Титце У., Шенк К., *Полупроводниковая схемотехника*, М., Мир 1982; 4. Соклоф, С., *Приложения на аналогови интегрални схеми*, С., Техника, 1990; 4. Comer, D., *Fundamentals of Electronic Circuit Design*, NY, John Wiley & Sons, 2003.

DESCRIPTION OF THE COURSE

Name of the course **Quality and Reliability in Electronics**	Number: **MpE48**	Semester: **II**
Type of teaching: **Lectures, Laboratory work, Seminars**	Semester hours:**L–30 hours; LW–15 hour; S– 15 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 course for students majoring in "Electronics", educational qualification degree "Master -2 years /from prof. Bachelor/ "

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. shnaiah KriP. 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: **Control Theory**	Code: **PpE41**	Semester: **II**
Type of teaching: Lectures and laboratory work	Semester hours: L **– 30** LW **– 15**	Number of credits: **4**

Lecturer: Assoc. Prof. PhD. Sevil Ahmed, Technical University Sofia, Branch Plovdiv, Faculty of Electronics and Automatics (FEA), Control Systems Department, Phone: 032 659585, Email: sevil.ahmed@tu-plovdiv.bg.

COURSE STATUS IN THE CURRICULUM: Compulsory course for students majoring in "Electronics", educational qualification degree "Master -2 years /from prof. Bachelor/ "

AIMS AND OBJECTIVES OF THE COURSE: The aim of the course is to give the students essential knowledge and skills in Automatics, including some problems of the analysis and synthesis of automatic control systems.

DESCRIPTION OF THE COURSE: The course considers linear automatic control systems – basic definitions, principles of automatic control, control lows, classification of control systems; Mathematical models of control systems – differential equations, linearization, transfer function, block diagram models and transformations; Forced response of basic dynamic units – time and frequency response; Stability of linear systems – definitions, necessary and sufficient conditions, Routh-Hurwitz criterion, Nyquist criterion, Bode criterion; Performance of feedback control systems – time domain performance specifications, steady-state error, performance indices etc.; Linear control system design – Bode frequency-domain method to design compensators. State space description of linear systems. Lyapunov equation. Design by pole assignment; Industrial regulators – P,PI,PD, PID.

PREREQUISITES: Higher Mathematics I, II, III part, Physics I, II part, Theoretical electrotechnics I, II part, Technical Mechanics, Programming and computer systems 1, 2 part, English language.

TEACHING METHODS: Lectures using multimedia; laboratory work using analogue modeling devices and measurement technics, computer-aided design, analysis and simulation, work in teams, protocols.

METHOD OF ASSESSMENT: One two-hour assessment work in the end of the semester (90%). Performance from laboratory works is also considered (10%).

INSTRUCTION LANGUAGE: Bulgarian

BIBLIOGRAPHY:

1. Ishtev, K., *Automatic Control Theory*. Sofia, 2000 (in Bulgarian);
2. Naplatanov, N. et al., *Introduction in Control Theory,* Sofia, 1987 (in Bulgarian);
3. Naplatanov, N., *Bases of Technical Cybernetics*, Vol. 1: Automatic Control Theory. Sofia, Technics, 1976 (in Bulgarian);
4. Voronov, A. A., *Automatic Control Theory*, vol. 1, Moscow, 1986 (in russian);
5. Zaitzev, G. *Theory of Automatic Control and Regulation*. Kiev, 1988 (in russian);
6. Chen, C-T., Analog & Digital Control System Design, Oxford University Press, 1993;
7. Dorf, R. C., *Modern Control Systems*. Addison-Wesley Publishing Company, 1989;
8. Nise, N. S., *Control Systems Engineering*, The Benjamin/Cummings Publishing Company, Inc., 1992
9. Saadat, H., *Computational Aids in Control Systems Using MATLAB*, McGraw-Hill, 1993

DESCRIPTION OF THE COURSE

Name of the course **Electronic regulators**	Code: **MpE50**	Semester: **II**
Type of teaching: **Lectures and laboratory work**	Semester hours: **L – 30 hours, LW-30 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 course for students majoring in "Electronics", educational qualification degree "Master -2 years /from prof. 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 **Optoelectronic and Sensor Devices**	Code: **MpE51**	Semester: **II**
Type of teaching: Lectures and laboratory work	Lessons per week: L – 2 hours; LW – 1 hour.	Credits: **4**

LECTURER:

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:

Compulsory course for students majoring in "Electronics", educational qualification degree "Master -2 years /from prof. Bachelor/ "

AIMS AND OBJECTIVES OF THE COURSE:

The course introduces in the optoelectronics and sensor technique. The aim of the course is to give the students knowledge of analysis and design of optoelectronics and other devices with different sensors.

DESCRIPTION OF THE COURSE: The basics of the analysis and design of sensor devices and systems are covered: Principle of the work of different sensors and their characteristics, Basic circuits for signal receiving and processing, The analysis and design of devices and systems, working whit covered sensors.

PREREQUISITES: Electrical Engineering Theory, Semiconductor devices, Signals and systems, Analog elektronics.

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: Bulgarien

BIBLIOGRAPHY :

1. Рачев И., *Лекционни записки по аналогова схемотехника – I част*, С, изд. на ТУ-София, 2011; 2. Соклоф, С., *Приложения на аналогови интегрални схеми*, С., Техника, 1990; 3. Schubert, E. F., *Light Emitting* Diodes, Cambridge University Press, 2006; 4. Johnson M., *Photodetection and Measurement: Maximizing Performance in Optical Systems*, McGraw-Hill 2003; 5. Comer, D., *Fundamentals of Electronic Circuit Design*, NY, John Wiley & Sons, 2003.