Faculty: FACULTY OF TELECOMMUNICATIONS AND MANAGEMENT
Department: GENERAL ENGINEERING
Professional Field: 5.13. GENERAL ENGINEERING
Specialty: DIGITAL ENTREPRENEURSHIP AND HIGH TECHNOLOGY
Educational-qualification degree: BACHELOR

LEARNING COURSE DESCRIPTION

1. Course title: *FUNDAMENTALS OF ELECTRONICS*
2. Course code: B.45.014.1
3. Type of the course: *Compulsory*
4. Level: *Bachelor*
5. Year of study: *First*
6. Semester: *Second*
7. Number of credits: *6*
8. Name of the lecturer: *Assist. Prof. eng. Boris Vasilev Vasilev, PhD*
9. Course learning outcomes:

The aim of the course is to give students basic (fundamental) knowledge about: structures and principles of operation of electronic components; parameters and properties of the electronic components; functions and workloads of the components in electronic circuits.

Students who have completed their coursework must acquire:

Basic knowledge of the functions, structure and principles of operation and building blocks in electronics.

Practical skills to measure the parameters and characteristics of the building elements in analog and digital electronic circuits, as well as to make diagnostics, repairs and operational settings.

Competencies, as after completing the course, successful students must be able to: measure the parameters of the building blocks; assess their functionality and qualities; study and use other necessary electronic devices.

10. Teaching methods:

The teaching method is in lecture and discussion form. The lectures are presented with a multimedia projector: a structure of the lecture, major definitions and the most essential data, documents and graphics are projected on the screen. Students can access these materials in advance through the textbooks of the course and, if desired, can comment on them during the lectures, thus to get more explanations by the teacher.

11. Prerequisites:

Students should have a thorough knowledge of the Engineering mathematics - I and II, Fundamentals of electrical engineering, Fundamentals of engineering design.

Courses using the discipline are all the specialized technical disciplines, which deal with hardware devices and systems, and are included in the curriculum of the specialty *Digital Entrepreneurship and High Technology*.

12. The course contents:

The course deals with current topics on the structure and functionality of main passive and active electronic elements and blocks, as well as on the principles and laws of construction of electrical circuits.

Lectures are focused on modern active electronic building blocks, as well as to one of the four fundamental interactions in physics - Electromagnetic interaction.

13. Bibliography:

Basic literature:

1. **Sean Westcott, Jean Riescher Westcott,** Basic Electronics [OP]: Theory and Practice, 2nd Edition, MERCURY LEARNING AND INFORMATION**,** 2020.
2. **Paul Scherz, Simon Monk,** Practical Electronics for Inventors, McGraw-Hill Education, 2016.
3. **Adel S. Sedra, Kenneth C. Smith** Microelectronic Circuits: Theory And Application, 7Th Edn Paperback, "Oxford University Press",2017.
4. **Kiran Kumar Panigrahi**, Basic Electronics, „www.tutorialspoint.com", 2017.
5. **A. P. Godse, U. A. Bakshi,** Basic Electronics," Technical Publications",2018.

Additional literature:

1. **Wayne Storr,** BASIC ELECTRONICS TUTORIALS, „www.electronics-tutorials.ws",2013.
2. **Santiram Kal**, Basic Electronics Devices, Circuits And It Fundamentals, „PHI Learning",2015.
3. **Debashis De,** Basic Electronics, "Pearson India"2010.

14. Assessment methods and criteria:

The course ends with an *exam.* Both the student's individual and team work is taken into account during the semester - ongoing control during lectures and seminars is used.

1. Requirements for the assessment of the six-point system

The course ends with an exam. The final grade is formed by two components: participation in the exercises and defense of tests with a weighting factor of 0.4 and the grade from the exam - with a weighting factor of 0.6.

2. Formation of the final mark

The formation of an ongoing assessment in the training course is based on the points received and their arrangement according to the six-point system given in Table 1.

Table 1.

Number of points	**Assessment According to the 6-point Scale System**
0 – 20	Fail 2 (F)
20 – 39	Fail 2 (FX)
40 – 49	Satisfactory 3.00 (E)
50 – 59	Satisfactory 3.00 (D)
60 – 69	Good 4.00 (C)
70 – 84	Very good 5.00 (B)
85 – 100	Excellent 6.00 (A)

15. Language of instruction: *Bulgarian*