

Faculty: FACULTY OF TELECOMMUNICATIONS AND MANAGEMENT
Department: INFORMATION TECHNOLOGIES
Professional Field: 5.3 COMMUNICATION AND COMPUTER TECHNOLOGY
Specialty: HIGH TECH CYBERSECURITY
Educational-qualification degree: PROFESSIONAL BACHELOR

LEARNING COURSE DESCRIPTION

1.Course title: WIRELESS SECURITY

2.Course code: P.18.032.2

3.Type of the course: *elective*

4.Level: *professional bachelor*

5.Year of study: *second*

6.Semester: *fourth*

7.Number of credits: 6

8.Name of the lecturer: *Assoc. Prof. Valeri Petrov Gochev, Ph.D.*

9.Course learning outcomes:

The aim of the course is to form knowledge, skills and competencies of wireless security.

Students who have completed their training in the course must acquire:

Basic knowledge of the principles on which wireless communications operate, especially in the information security area.

Practical skills for application in various areas of the above principles (in general, in construction and operation of communication and information infrastructure, and in particular - in the specialty in which the training is conducted), to overcome cyber threats and increase network security.

Competencies: The correct use of concepts and terminology. Analysis of hardware and software aspects of the operation and security of WPANs, WLANs, MANs and WANs.

10.Teaching methods:

Software and multimedia resources are used for teaching during lectures to illustrate basic principles and technologies. In practical exercises, the latter are applied using the same system and simulation software. To obtain practical results, measuring equipment available in the higher school is used, and the methodological aspects are clarified in the course of the classes.

11. Prerequisites:

Students should have knowledge of Security Fundamentals and Information Security Standards, Fundamentals of Operating Systems, Networks and Protocols 1, Cyber Threats and Cyber Crises, Computer Architectures

12. Course contents:

The course concerns wireless communications with different coverage (depending on distance, frequency or other physical feature) and application (for example, for large corporations or small customers). The airborne radio interface has many specific features such as the use of a common environment, often defined as insecure and interrupted (from the point of view of cable systems), but extremely important due to the mobility of modern software applications. The course focuses on cybersecurity.

13. Bibliography

Basic literature:

1. Hucaby D., CCNA Wireless 200-355 Official Cert Guide, Pearson Education, 2016.
2. Osterhage W., Wireless Network Security. Taylor & Francis Group, 2017.
3. Padgett J., Guide to Bluetooth Security, U.S. Department of Commerce, 2017.

Additional literature:

1. Zou Y., Zhu J., Wang X., Hanzo L., A Survey on Wireless Security: Technical Challenges, Recent Advances, and Future Trends. Proceedings of the IEEE, vol. 104, no. 9, pp. 1727-1765, 2016.
2. Bharati S., Podder P., Rubaiyat Hossain Mondal M., Robiul Alam Robel Md., Threats and Countermeasures of Cyber Security in Direct and Remote Vehicle Communication Systems. Journal of Information Assurance and Security, Volume 15, pp. 153-164, 2020.

3. Learn Wireless Network Security. www.tutorialspoint.com/wireless_security

14. Assessment methods and criteria:

Tasks for work related to the lecture material or practical exercises are given to students. Ongoing control includes solving tests and practical tasks.

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

The assessment is in accordance with previously announced criteria. The activity of the students during the classes is important in setting specific practical tasks. The course ends with an ongoing control, taking into account the student's work during the semester on lectures and practical classes.

2. Formation of the final mark

The assessment in the course is formed on the basis of a point system, and the maximum number of points that students can receive is 100. The sum of points in ongoing control is collected by solving tests and practical tasks. Table 1 presents the evaluation based on the number of points.

Table 1.

Number of points	Assessment According to the 6-pointScale 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/English*