MEDICAL UNIVERSITY
"PROF. PARASKEV STOYANOV, MD" - VARNA
FACULTY OF DENTAL MEDICINE

Approved with Protocol of the Faculty Council № 7 / 12.05.2026г.

Approved by:
DEAN
/Assoc. Prof. G. Papanchev, M.D./

TUITION PROGRAMME

In

"COMPUTER TECHNIQUE"

Specialty: "DENTAL MEDICINE"
Educational and qualification degree "MASTER"
Professional qualification – D.M.D.

	Semester	*Horarium – hours per week*	*Horarium – hours in total*
Lectures	II	1	15
Seminars	II	1	15
Total hours	II		30
Extracurricular employment	II	1	60
Forms of Evaluation			Exam II Semester
Credits (ECTS)	II		3

Varna, 2026

Annotation

The use of digital technologies in dentistry and healthcare imposes the need for every professional in these fields to have not only basic computer skills, but also to be able to use modern computer and information technologies.

Module "Computer technique" covers the education on basics of informatics, knowledge on information and communication technologies, basic computer skills and medical statistics.

Module "Computer technique" is developed for students of dental medicine and covers the following main topics:

- *Systems and hardware.* Logical and physical structure of computer systems are discussed including different types of computer systems and peripherals, computer networks, Internet and Internet implementations. Also, different types of operating systems are discussed as well as different types of application software. Special attention is paid to data bases and medical information systems.
- *Introduction to medical statistics.* The aim here is to acquaint the students with the statistical methods for describing and analyzing data as well as making sense out of data. The students will develop a statistical vocabulary, learn methods for descriptive data analysis, study the fundamentals of probability and sampling distributions, learn methods for statistical inference and hypothesis testing and become familiar with linear regression and correlation. Statistical software packages will be discussed.

Forms of teaching, monitoring and evaluation:

The course includes lectures and seminars.

Monitoring and evaluation is done through current control and semester examination - written exams (test)

Knowledge

Upon completion of the course "Computer Technique", students should: understand the fundamental principles of informatics and information technologies; know the logical and physical structure of computer systems; understand the functions and applications of the main hardware components and peripheral devices; be familiar with the main types of operating systems and application software; understand the principles of computer networks, the Internet, and Internet-based applications; know the fundamentals of databases and medical information systems; understand the basic concepts, methods, and applications of medical statistics; understand the principles of data collection, processing, analysis, and interpretation in medicine and dental medicine; recognize the role of digital technologies in modern dental practice and healthcare.

Skills

Upon completion of the course, students should be able to: work confidently with computer systems and standard application software; effectively use Internet resources and electronic information sources; process, store, and present information using modern digital tools; use the basic functions of medical information systems and databases; apply fundamental methods for statistical processing and analysis of medical data; interpret statistical results and draw evidence-based conclusions; prepare graphical and tabular presentations of data; apply digital technologies in their educational and future professional activities; work independently and collaboratively using information and communication technologies.

Competences

Upon successful completion of the course, students should acquire: digital competence for work in a modern educational and professional environment; the ability to critically evaluate and use

clinical practice and scientific research; competence in handling medical data while observing principles of security and confidentiality; readiness to apply statistical approaches in the analysis of medical and dental information; the ability to adapt to new digital technologies and software solutions in dental medicine and healthcare.

Content of module

Lectures:

No	Title	Academic hours
1.	Computer systems – functions, architecture. Basic principles of operation. Software – functions, classification. Operating systems – basic characteristics, usage. Types of operating systems. Operating system	1
2.	Local networks. Types. Characteristics. Global networks. Internet. WWW. Basic characteristics. Malicious software. Types. Protection.	2
3.	Statistical software. SPSS – usage, basic characteristics.Types of data and measurement scales.Data organization. Presenting data in tables and graphs. Strategies for construction of graphs. Types of graphs. Descriptive statistics. Measures of central tendency. Variability. Measures of variability.	2
4.	Population and samples. Analysis of empirical distributions. The Normal distribution. Statistical inference of parameters, point and interval estimates. Confidence intervals.	2
5.	Statistical hypotheses testing. Types. Types of errors in hypotheses testing. Parametric methods for hypotheses testing. T-test. Types. Usage. Analysis of variance.	2
6.	Non-parametric tests for hypotheses testing. X^2 – test. Types. Usage.	2
7.	Analysis of relationships. Correlation. Regression	2
	TOTAL	**15**

Seminars:

No	Title	Academic hours
1.	Operating system Windows – basic characteristics. Configuration.	2
2.	EXCEL and Power Point – basic characteristics. Usage. Configuration. Creating graphs with EXCEL and Power Point. Creating presentations with Power Point.Using mathematical and statistical functions with EXCEL.	3
3.	Statistical software. SPSS – usage, basic characteristics. Types of data and measurement scales. Data organization. Presenting data in tables and graphs.	2
4.	Descriptive statistics. Measures of central tendency. Variability. Measures of variability.	2
5.	Population and samples. Analysis of empirical distributions. The Normal distribution. Statistical inference of parameters, point and interval estimates. Confidence intervals.	2
6.	Statistical hypotheses testing. Types. Types of errors in hypotheses testing. Parametric methods for hypotheses testing. T-test. Types. Usage. Analysis of variance.	2
7.	Non-parametric tests for hypotheses testing. X^2 – test. Types. Usage. Analysis of relationships. Correlation. Regression.	2
	TOTAL	**15**

Literature:

1. Jay S. Kim Ph.D,, Ronald J. Dailey Ph.D., Biostatistics for Oral Healthcare; Print ISBN:9780813828183 |Online ISBN:9780470388303; |DOI:10.1002/9780470388303; 2008 Blackwell Munksgaard
2. Lectures and materials placed in the Blackboard platform of MU - Varna.
3. Norman, G.R., Streiner, D.L, *Biostatistics The Bare Essentials*, second edition, B.C. Decker Inc., Hamilton, London, 2006
4. Landau, S., Everitt, B.S, *A Handbook of Statistical Analyses using SPSS*, Chapman & Hall/CRC Press LLC, 2004

Examination Synopsis
SOCIAL MEDICINE

1. Computer systems – functions, classification.
2. Basic architecture of a computer system. Principles of operation of the computer systems.
3. Software – functions, classification. System software. Application software.
4. Operating systems – main characteristics. Usage. Types of operating systems.
5. Windows – main characteristics. Architecture. Configuration of the system and the system resources.
6. Computer networks. Types. Characteristics.
7. Local networks. Types. Characteristics.
8. Global networks. The Internet. Usage. Configuration.
9. EXCEL and Power Point – basic characteristics. Usage. Configuration.
10. Graphs. Strategies for construction of graphs. Types of graphs.
11. Creating graphs with EXCEL and Power Point. Creating presentations with Power Point.
12. Using mathematical and statistical functions with EXCEL.
13. Statistical software. SPSS – usage, basic characteristics.
14. Types of data and measurement scales.
15. Data organization. Presenting data in tables and graphs.
16. Descriptive statistics. Measures of central tendency.
17. Variability. Measures of variability.
18. Population and samples. Analysis of empirical distributions. The Normal distribution - basic characteristics.
19. Statistical inference of parameters, point and interval estimates. Confidence intervals.
20. Statistical hypotheses testing. Types of hypotheses.
21. Types of errors in hypotheses testing.
22. Parametric methods for hypotheses testing. T-test. Types. Usage.
23. Analysis of variance. Usage.
24. Non-parametric tests for hypotheses testing. X^2 – test. Types. Usage.
25. Analysis of relationships. Correlation.
26. Analysis of relationships. Regression.

Approved by a decision of the Council of the Department of Social Medicine and Healthcare Organization

Protocol № 6 / 13.05.2026

Approved by a decision of the Council of the Faculty of Dental Medicine

Protocol № 02/27.05.2026

Programme developed by: _____

/Assoc. prof. N. Usheva, MD, PhD/

Head of Department of Social Medicine and Healthcare Organisation

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/Assoc. prof. N. Usheva, MD, PhD/