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Zaporizhzhya Polytechnic National University
Faculty of Radio Electronics and Telecommunications
Department of Radio Engineering and Telecommunications
specialty 172 "Telecommunications and radio engineering" educational and professional program "Telemedicine and biomedical systems"

DESCRIPTION / Syllabus of discipline / module

Short name of the university / department date (month / year)	NU «Zaporizhzhya Polytechnic» 08/2020
Module name / Course name	Telemedicine
Code:	PPN 08

Teacher(s)	**Department**
Samoilyk Sergey Sergeevich	Radioengineering and Telecomunication

Study cycle	**Level of the module**	**Type of the module**
MSc	2	mandatory

Form of delivery	**Duration**	**Language(s)**
Lectures/Hands-on Lab session	15 weeks	Ukrainian
Connection with other disciplines		
Previous: - telecommunication and information network	**Related (if required):** - medical information infrastructure	

Credits of the module	**Total student workload**	**Contact hours**	**Individual work hours**
3	90	30	60
Aim of the module (course unit): competences foreseen by the study programme			
providing to students of theoretical knowledge and practical skills on construction of modern telemedicine systems			
Learning outcomes of module (course unit)		**Teaching/learning methods**	**Assessment methods**
ZK1. The ability to think abstractly, analysis and synthesis. ZK2. Knowledge and understanding of the subject area and understanding professional activities. ZK3. The ability to apply knowledge in Use when conducting lectures and laboratory to occupy practical situations.		- using during lectures listening and preparing to practical work and labs.	- without separate assessment ;

ZK6. Ability to evaluate and provide quality of work performed. ZK8. The ability to freely own the state and communicate in foreign languages. ZK10. Ability to search, process and analysis of information from various sources.	- theoretical knowledge received during lectures and consultations	- evaluate by the report on laboratory works;
ZK11. Ability to work autonomously, and in the team. ZK9. Ability use information and communication technologies. SCS2. Ability provide efficiency of biomedical systems for score implementation modern technologies of transfer, processing, storage and display of telemedicine information approaches. SC4. Ability to solve tasks software reliability, survivability, noise protection, information security and bandwidth ability telecommunications and radio engineering biomedical systems with taking into account economic, legal, security and other aspects.	- independent and under supervising preparation and implementation practical work.	- assessment during laboratory work and exam.

Themes	**Contact work hours**						**Time and tasks for individual work**	
	Lectures	Consultation	Seminars	Practical work	Laboratory work	**Total contact work**	**Individual work**	**Tasks**
Content module 1. General information about telemedicine and its information software								
Topic 1. Introduction. Telemedicine - formation and development	1	-	-	-	-	1	7	Searching and study stories about telemedicine, terms and their history appeared
Topic 2. Legal aspects telemedicine	2	-	-	-	-	2	7	Searching and study regulations of tele-medicine concerning Ukraine law

Topic 3. Telemedicine equipment. Means of transmission telemedicine information	2	-	-	-	4	6	8	Preparing to lab work “Medical informational databases”
Topic 4. The main types telemedicine services	2	-	-	-	3	5	8	Preparing to lab work "Quality and efficiency assessment of telemedicine services »
Content module 2. Standards of medical information transfer and structure telemedicine systems								
Topic 5. Transmission standard Medical Data V.16 Standard for transfering of medical images DICOM	2	-	-	-	-	2	8	Search and study standards in the Health-Care - digital images and communication in medicine, including management of working flows and data.
Topic 6. Standards family for video conferencing H.320 / H.323. Standard of electronic exchanging medical data	2	-	-	-	-	2	7	Search and study basic standards H.32x's family in the form of recommenddations ITU
Topic 7. Generalized scheme biotelemetric system. Block diagram of telemedical system and its tasks	2	-	-	-	4	6	8	Preparing to laboratory work “Processing medical signals to transfer them on communication channels”
Topic 8. Organization video conferencing with using ISDN and IP network.	2	-	-	-	4	6	7	Preparing to laboratory work “Organization video conferencing in telemedicine”
Total **165** hours	**15**	-	-	-	**15**	**30**	**60**	

Assessment strategy	**Weight in %**	**Deadlines**	**Assessment criteria**
current assessment	12	during the semester	theoretical report on each topic
laboratory work defense	22		defense of laboratory work №1
	22		defense of laboratory work №2
	22		defense of laboratory work №3
	22		defense of laboratory work №4
passing the test	60-100		credited

	35-59	after the module	not credited with the possibility of re-taking
	1-34		not credited with mandatory re-study of the discipline

Author	Year of issue	Title	Information about the publication	Place of printing. Printing house or internet link
Compulsory literature				
Lobas V.M, Vladzimirsky A.V., Мозговой В.В.	2012	Electronic means for state management of health-care	educational manual	Donetsk: Publishing house Knowledge
Vladzimirsky A.V.	1011	Telemedicine	monography	Donetsk: Ltd. “Digital printing house”
Tymoshenko LP.	2006	Telemedicine	educational manual	Kharkiv: KNURE
Kazakov VN, Klimovitsky VG, Vladzimirsky AV.	2005	Remote training in medicine	monography	Donetsk: LLC “North”
Vladzimirsky A.V.	2007	Evaluation efficiency telemedicine	monography	Donetsk: Ltd. “Digital printing house”
Additional literature				
Kobrinsky B.A.	2016	Telemedicine in the system practical Health-Care	monography	M.-Berlin: Direct-Media
Stolbov A.P.	2015	On the definition and classification telemedicine services article	periodic	Doctor and informational technologies, №2
Vladzimirsky A.V.	2012	Telemedicine in the system of organization and management of Health-Care	educational manual	Donetsk: Knowledge
Thompson Laura, Welling Luke	2003	Web Development PHP applications and MySQL	practical manual	SPb: OOO DiaSoftYUP

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