GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	NGN Systems and Architectures, PG_00048133		
Field of study	Electronics and Telecommunications		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
Education level	first-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Teleinformation Networks -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Sylwester Kaczmarek	
	Teachers	dr hab. inż. Sylwester Kaczmarek	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	15.0	15.0	0.0	30

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	2.0	18.0	50

Subject objectives

Getting skills of the new generation networks testing and designing chosen problems concerning these networks but in that taking the quality of classes services into consideration.

Learning outcomes

Course outcome	Subject outcome	Method of verification

Subject contents

Course content – laboratory
LAB: ATM technology as the transport for IP. ATM network configuring for the IP over ATM realization. Tools for observation and measurements in the IP network. Tools for the generation of the packet traffic. Testing the functionality of H.323 and SIP software terminals, as well as an IP PBX. Configuring H.323 Gatekeeper. Analysis of signalling message exchange scenarios for H.323 and SIP standards. Testing the quality of speech service in the IP and IP QoS (DiffServ) domain. Configuring and analysis edge and core router performance in the DiffServ domain.

PROJECT: Calculation of resources at the interface between ISDN/GSM and IP. Calculation of QoS parameters for the DS domain on the selected path, i.e. calculation of IPLR, IPDT, IPDV. Getting to know the standards and requirements for the quality of services in the IP QoS network. Discussion of the mechanisms implemented in Linux used to implement the service system in edge routers (RB) and core routers (RR). Discussion and writing scripts for RB and RR routers. Tools used in the laboratory to generate, observe and measure packet streams.

Prerequisites and co-requisites

No requirements

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Practical exercise	50.0%	50.0%
Project	50.0%	50.0%

Recommended reading

Basic literature	Materials prepared by the lecturer available in electronic form in PDF files and in the form of a photocopy (on request).
Supplementary literature	No requirements.
eResources addresses	

Example issues/ example questions/ tasks being completed

Practical activites within the subject	Not applicable

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