GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Service Platforms and Applications for NGN, PG_00048339		
Field of study	Electronics and Telecommunications		
Date of commencement of studies	February 2027	Academic year of realisation of subject	2026/2027
Education level	second-cycle studies	Subject group	Optional subject group Specialty 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	1	Language of instruction	Polish
Semester of study	1	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	exam
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 inż. Marcin Narloch	
	Teachers	dr inż. Marcin Narloch	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	0.0	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	4.0	16.0	50

Subject objectives

Student describes realizations of service platforms for the next generation networks. Student determines correct realizations of applications fulfilling users needs in next generation networks

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W03] knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum	Student knows platforms of service control and application servers solutions for services in Next Generation Networks.	[SW1] Assessment of factual knowledge
[K7_W10] knows and understands, to an increased extent, the basic processes occurring in the life cycle of equipment, objects and technical systems, as well as methods of supporting processes and functions, specific to the field of study	Student knows platforms of service control and application servers solutions for services in Next Generation Networks and understands control information flows for realisation of services in NGN networks.	[SW1] Assessment of factual knowledge

<table>
<tr><td>Subject contents</td><td>Course content – lecture
1. The importance of service platforms in the context of NGN 2. IMS as an example of NGN service architecture 3. The role of the IMS service control layer for providing services 4. Interworking with application layer in IMS for providing services 5. Technologies of IMS application layer developement 6. The role of component-oriented architectures in applications for NGN 6. Java EE environment in programming applications for NGN 7. JAIN SLEE in the context of applications for NGN 8. Service execution environment (SLEE Container) 9. JAIN SLEE components and component interfaces 10. Standard components (Event and Activity) and their role in JAIN SLEE 11. SBB (Service Building Blocks) for providing services in JAIN SLEE 12. The notion of event and event handling in JAIN SLEE 13. Communication with environment through Resource Adaptors and Resource API 14. Standard functionalities of application server 15. Application of standard Java API for service functionality extension 16. Elements of JAIN SLEE environment management (JMX) 17. Specificity of JAIN SLEE application programming 18. Analysis of JAIN SLEE application in different telecommunication areas 19. Analysis of exemplary JAIN SLEE applications 20. SIP Servlets in the context of applications for NGN 21. SIP Servlet Container 22. Application router 23. SIP Servlet API and applications developed with SIP Servlet API 24. Specificity of SIP Servlet application programming 25. Analysis of exemplary SIP Servlet applications 26. Mobicents as an example of platform for NGN application development 27. Architecture for providing Parlay/OSA services 28. Applications using Parlay/OSA API 29. Application of Parlay X Web Services 30. Specificity of Parlay/OSA application programming 31. Analysis of exemplary Parlay/OSA applications 32. Operation systems of mobile devices 33. Specificity of application programming for mobile platforms in the context of applications for NGN</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>No requirements</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Midterm colloquium</td><td>50.0%</td><td>100.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Material prepared by the lecturer in the form of xeroxcopy.</td></tr>
<tr><td>Supplementary literature</td><td>Boulton C., Gronowski K., Understanding SIP Servlets 1.1, Artech House, 2009.
Javi R., Bakker J., Anjum F.,Programming converged networks: call control in Java, XML, and Parlay/OSA, Wiley-Interscience; 2003.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>1. Characterisation of IMS architecture.

2. Characterisation of services for NGN networks based on Jain SLEE platform.

3. Characterisation of services for NGN networks based on SipServlets platform.

4. Characterisation of services for NGN networks based on Parlay/OSA concepts.

5. Future development directions of NGN services platforms.</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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