GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Graphic Systems, PG_00058803		
Field of study	Informatics		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2022/2023
Education level	second-cycle studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	1	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Intelligent Interactive Systems -> Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Mariusz Szwoch	
	Teachers	dr inż. Wioleta Szwoch dr inż. Mariusz Szwoch	

Lesson types and methods of instruction							
	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	12.0	0.0	15.0	0.0	0.0	27
	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	27	10.0	88.0	125

Subject objectives	The aim of the course is to provide content and skills in the manufacturing of methods of representation of information using markup languages XML, XML Schema, DTD, XPath, XQuery, XSL, XSLT

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_U41] can select methods of modelling and analysis of information systems and applications using selected elements of theoretical computer science and modern programming tools	Student - creates a DTD scheme, - creates XML Schema, - uses existing (standard) XML Schema to build your own schema, - validates an XML document, - transforms an XML document into another XML schema, - transforms XML data into HTML, PDF , - executes the processed XML data using XPath and XQuery, - uses XML in database management systems.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
	[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.	The student knows the principles of designing resources of online portals, in particular in the scope of: - creating a DTD schema, - creating XML Schema, - validating an XML document, - transforming an XML document into another XML schema, - transforming XML data into HTML, PDF, - processing of XML data processed using XPath and XQuery, - using XML in database management systems.	[SW1] Assessment of factual knowledge
	[K7_U07] can apply advanced methods of process and function support, specific to the field of study	Student - creates a DTD scheme, - creates XML Schema, - uses existing (standard) XML Schema to build your own schema, - validates an XML document, - transforms an XML document into another XML schema, - transforms XML data into HTML, PDF , - executes the processed XML data using XPath and XQuery, - uses XML in database management systems.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
	[K7_W42] Knows and understands, to an increased extent, the principles and trends in the analysis and design of local and distributed IT systems and the basics of computer modeling and computerization of complex cognitive and decision-making processes.	The student knows the rules concerning the formats of data exchange on the Internet, in particular: - knows the structure of XML documents - knows the technical aspects of dynamic processing in the communication process	[SW1] Assessment of factual knowledge
	[K7_U03] can design, according to required specifications, and make a complex device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	Student - creates a DTD scheme, - creates XML Schema, - uses existing (standard) XML Schema to build your own schema, - validates an XML document, - transforms an XML document into another XML schema, - transforms XML data into HTML, PDF , - executes the processed XML data using XPath and XQuery, - uses XML in database management systems.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools

Subject contents	1. Representation of information in informatics - basic definitions and classifications 2. SGML and XML an introduction 3. Logical syntax of an XML document - the language specification 4. Well-formed XML document - rules for creation and verification of data objects 5. XML document parsing - DOM 6. XML document parsing - SAX 7. Validity constraints for XML documents - validation 8. Designing of schema for an XML document - DTD 9. Designing of schema for an XML document - XML Schema 10. Description and retrieval of data and XML documents - XPath 11. Description and retrieval of data and XML documents - XQuery 12. Transformation of XML documents - an introduction 13. Transformation of XML documents - XSL 14. Transformation of XML documents - XSLT 15. Transformation of XML documents - XSL FO 16. Security of XML documents: XML Signature, XML Encryption 17. XML in Web Services: XML-RPC, SOAP, WSDL
Prerequisites and co-requisites	basics of computer programming

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Exam	51.0%	50.0%
Laboratory	51.0%	50.0%

Recommended reading	Basic literature	Priscilla Walmsley, Wszystko o XML Schema, WNT, 2007 Priscilla Walmsley, XQuery, OReilly, 2007 Skrypt z materiałami do przedmiotu Metody reprezentacji informacji Steven Holzner, XML. Vademecum profesjonalisty, WNT, 2001 W3C, Rekomendacje XML, XML Schema, XPath, XQuery i HTML, www.w3.org

	Supplementary literature	No requirements
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Discuss the construction of an XML document Characterize SGML Discuss the relationship SGML to XMLDiscuss DTD, give examplesDiscuss XML Schema, give examplesDiscuss XPath, give examplesDiscuss XQuery, give examplesDesign in the DTD and write a sample implementation (XML) document ...Design of XML Schema and write a sample implementation (XML) document ...Discuss the goals and methods of the XML / examples of their achievementsDiscuss the use of XML Web servicesDiscuss the method of parsing XML DOM doumentówDiscuss XML parsing using SAX doumentówDesign complex data types for ... and a simple type for ... XML SchemaDiscuss what they are and how to use the data types of attributes in the DTD: CData, NMTOKEN, NMTOKENS, ID, IDREF, IDREFS.	
Work placement	Not applicable	