

GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Information Visualization Systems, PG_00048087								
Field of study	Electronics and Telecommunications								
Date of commencement of studies	October 2020		Academic year of realisation of subject			2022/2023			
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			3.0			
Learning profile	general academic profile		Assessment form			exam			
Conducting unit	Department of Metrology and Optoelectronics -> Faculty of Electronics, Te				elecom	elecommunications and Informatics			
Name and surname	Subject supervisor		dr inż. Adam Mazikowski						
of lecturer (lecturers)	Teachers		dr inż. Adam Mazikowski						
		-	dr inż. Katarzyna Karpienko						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
	Number of study hours	30.0	0.0	15.0	0.0		0.0	45	
	E-learning hours included: 0.0								
Learning activity and number of study hours	Learning activity Participation in classes include plan		didactic Participation in d in study consultation hours		Self-study SUM				
	Number of study hours	45		3.0		27.0		75	
Subject objectives	The aim of the course is to introduce students to the field of the Information visualization systems and mastery of the skills of its practical application.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_U06] can analyse the operation of components, circuits and systems related to the field of study, measure their parameters and examine technical specifications		measure selected display characteristics and interpret the results correctly			[SU1] Assessment of task fulfilment			
	[K6_W03] Knows and understands, to an advanced 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		presents basic physical phenomena and technologies of elements of information visualization systems; classifies and differentiates the properties and characteristics of visualization modules; measures electro- optical, spectral and dynamic characteristics of standard displays; evaluates the conditions for the application and selection of visualization modules to the requirements			[SW1] Assessment of factual knowledge			
Subject contents	1. Information Visualisation Systems; Elements, Functions, Properties 2. Displays; Classification, Characteristics, Properties 3. Human Visual System; Photopic, Scotopic Vision, Color Sensation, Colorimetry 4. Colorimetrie Systems 5. Photometric and Colorimetric Characteristics of Displays 6. Liquid Crystals; Classification, Mechanical, Optical, Electrical Parame-ters 7. Electro-optical Phenomena in LC 8. Liquid Crystal Cell Construction 9. Operation of TN 10. Operation of ECB, VAN 11. Operation of PDLC, Guest-Host 12. Operation of STN, DSTN 13. LCD- ferroelectric, antiferroelectric 14. LCD Construction, transmissive, reflective, transflective Modes 15. Optimization of Color LCD 16. Passive Displays static and MUX (multiplexed) Driving 17. Active Matrix TFT LCD - general Considerations 18. Displays AM TFT LCD - addressing, performances, technology 19. LCD Backlights 20. Displays VFD, EL/LED, OLED- Construction, Properties, Applications 21. PDP 22. CRT, FED 23. DMD- DLP 24. Projection Displays, picoprojectors 25. Displays 3D (projection, FPD-3D) 26. Mikro-displays, SLM, Night Vision Systems 27. Jumbo Displays, Digital Cinema 28. Specjal Displays: HUD, VR, AR, Touch-screen 29. Future Trends of the Information Visualisation 30. Examination								

Prerequisites and co-requisites	No recomendations						
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade				
	Execution of the all laboratory exercises	50.0%	30.0%				
	Exams	50.0%	70.0%				
Recommended reading	Basic literature E. Lueder: Liquid Crystal Displays, Wiley 2001						
	Supplementary literature No requirements						
	eResources addresses	Adresy na platformie eNauczanie:					
Example issues/ example questions/ tasks being completed							
Work placement	Not applicable						