



Subject card

Subject name and code	Fundamentals of Radio Broadcasting and TV, PG_00048130						
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				1.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Department of Radiocommunication Systems and Networks -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Sławomir Gajewski				
	Teachers		dr inż. Sławomir Gajewski				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15	1.0	9.0	25		
Subject objectives	The target is the introduction of a student to the principles of radio broadcasting and TV systems construction.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U09] can carry out a critical analysis of the functioning of existing technical solutions and assess these solutions, as well as apply experience related to the maintenance of technical systems, devices and facilities typical for the field of studies, gained in the professional engineering environment		Student can critically evaluate solutions used in TV and radio broadcasting		[SU2] Assessment of ability to analyse information		
	[K6_K02] is ready to critically assess possessed knowledge and acknowledge the importance of knowledge in solving cognitive and practical problems		The student is able to critically assess the properties and requirements of various television and radio broadcasting systems		[SK5] Assessment of ability to solve problems that arise in practice		
Subject contents	Course content – lecture 1. Broadcasting on long, medium and short waves, ground and ionospheric signals propagation, useful ranges, disturbances and their sources. 2. Basic characteristics of analog and digital television and radio broadcasting systems. Terrestrial transmission of TV signals. TV signal band, VSB modulation. 3. Picture analysis, TV signal characteristics, TV signal band. Methods of colour TV signal composition, luminance and chrominance signals. Line and field synchronization. Colour synchronization. 4. Fundamentals of colour TV signals processing in PAL standard. 5. Stereophonic and monophonic sound signals composition, stereo sound signals emission. 6. Digital sound signals in the NICAM system. 7. Digital TV systems DVB. Vision signals in digital TV. Digitization of luminance and chrominance signals. MPEG2 compression. 8. Analog and digital TV receivers. Block diagrams. Plasma and LCD flat panel displays. 9. FM broadcasting. Stereophonic signal composition. 10. Additional digital signals in FM broadcasting systems, RDS system and its application. 11. Terrestrial DAB system characteristics. 12. Sound signals compression and multicarrier modulation. 13. Digital broadcasting in HF and MF frequency band. System DRM. 14. Satellite TV, transponder functions and its localizations on orbits. 15. Block diagram of satellite receiver. Transmission of picture and sound signals.						
Prerequisites and co-requisites	No requirements						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written colloquium, 1 hour. Acceptable oral colloquium for small number of students.	50.0%	100.0%
Recommended reading	Basic literature	Ibrahim K.F.: Newnes Guide To Television And Video Technology, Fourth Edition. Newnes 2007. Trundle E.: Newnes Guide To Television And Video Technology, Third Edition. Newnes, March 2001.	
	Supplementary literature	No requirements	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Practical activities within the subject	Not applicable		

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