GDAŃSK UNIVERSITY OF TECHNOLOGY

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 2025	Academic year of realisation of subject	2027/2028
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 -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Sławomir Gajewski	
	Teachers	dr inż. Sławomir Gajewski	

Lesson types and methods of instruction

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_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
[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

Subject contents

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

<table>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Written colloquium, 1 hour. Acceptable oral colloquium for small number of students.</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">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.</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">No requirements</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3"></td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
</table>

Document generated electronically. Does not require a seal or signature.