

COURSE GUIDE 2019-2020



1. Program info

1.1 Higher education institution	"Gheorghe Asachi" Technical University of Iasi
1.2 Faculty	Electronics, Telecommunications and Information Technology
1.3 Department	Telecommunications and Information Theory
1.4 Field	Electronics ; Telecommunications Engineering and Information Technology
1.5 Study level	Bachelor
1.6 Study program / Qualification	Telecommunication Technologies and Systems

2. Course info

2.1 Course name			Television					EDID 308	
2.2 Course organizer (lecturer)			S.l. dr. ing. Barabaşa Constantin						
2.3 Teaching assistants			S.l. dr. ing. Barabaşa Constantin						
2.4 A Year of study	3	2.5 S Semester	5	2.6 Assessment	Exam	2.7 Category	MD		

3. Estimated total time (hours per semester for teaching activities)

3.1 Number of hours per week	4	3.2 course	3	3.3a seminar		3.3b laboratory	1	3.3c project	
3.4 Total number of hours in curricula	56	3.5 course	42	3.6a seminar		3.6b laboratory	14	3.6c project	
Time distribution ¹								hours	
Textbook, course support, references and course notes study								28	
Library, electronic platforms and on site documentation								14	
Seminar/laboratory preparation, homework, reports, portfolios and essays								14	
Tutoring ²								3	
Assessment ³								3	
Other activities:								-	
3.7 Total individual study hours ⁴	64								
3.8 Total hours per semester ⁵	120								
3.9 Number of credit points	5								

4. Prerequisites (where applicable)

4.1 curricula type ⁶	N/A
4.2 d competence type	N/A

5. Infrastructure (where applicable)

5.1 for lectures	Projector, whiteboard
5.2 for laboratories	Laboratory with a minimum of 10 PC workstations; oscilloscope; signal generator;

6. Specific competences ⁷

			Number of credits ⁸ :	5	credits per competence ⁹
Professional competences	CP1	To know and appropriately use television systems terminology;			0.5
	CP2	To know and critically analyze the basic elements of a television system;			0.5
	CP3	Understand the main issues related to analogue video signal composition in analogue television systems (image exploration, BW complex video signal forming, color video signal components, its spectrum, the TV channel);			0.5
	CP4	Understand the main issues related to the implementation of a digital television system (sampling and quantization of image, video compression techniques, codes used in digital television, digital television, data transmission);			0.5
	CP5	Understand the theoretical aspects and applications of the main modulations used in digital transmissions;			0.5
	CP6	Understand and be capable of applying aspects related to audio and video analog signal filters;			0.5
	CPS1	To know and use the laboratory equipment: signal generators, digital oscilloscopes needed to measure TV signal, etc. ;			0.5
Transversal competences	CT1	Make effective use of information, communication and training resources;			0.5
	CT2	Demonstrate concern for professional improvement through training critical thinking skills;			0.5
	CT3	Develop teamwork skills and easily familiarize with an environment equipped with electronic measuring and control equipment;			0.5

7. Course targets (as resulting from Specific competences table)

7.1 Course main target	<ul style="list-style-type: none"> • Proficient knowledge of the structure and operation of an analog and digital television system;
7.2 Course specific targets	<ul style="list-style-type: none"> • Acquire theoretical knowledge on television systems analysis (analogue and digital) • Create simple projects for the implementation of functional blocks in a TV system; • Carrying out simple projects regarding organization and equipment for a closed circuit television system, built for surveillance video. • Image processing using Matlab environment;

8. Contents

8.1 Course ¹⁰	Teaching methods ¹¹	Notes
Introduction Structure of a television system; Photometry notions; Colorimetry notions; Acoustics notions; BW television systems (exploration methods, the BW-VCS signal, TV channel structure) Color television systems (color compatible TV System; The PAL system) Image capture and display devices Audio and video signal filtering specific circuits (anti alias filters, comb filters, delay lines) Introduction to digital television (image sampling and quantization) Modulations used in digital television (PSK, QAM, constellations, spectrum) Signals used for audio and video data transport Data transmission in digital TV systems (single carrier transmission, multi-carrier – OFDM) The DVB –S and DVB-T systems	Presentation, discussions, case study	Video Projector, whiteboard
References 1. Corneliu I.Toma, Florin Alexa, Radu A. Vasu - Principiile Televiziunii Analogice și Digitale, Editura Politehnica, Timișoara, 2006. 2. Herve Benoit – Digital Television – satellite, Cable, Terrestrial, IPTV, Mobile TV in the DVB Framework, third edition, Elsevier, 2008. 3. Walter Fischer – Digital Video and Audio Broadcasting Technology, Springer 2008 4. Sanjit K. Mitra – Digital Signal Processing Laboratory using Matlab, McGraw-Hill 1999		
8.2b Laboratory	Teaching methods ¹²	Notes
Presentation of the laboratory and general rules of conduct. Colorimetric systems, color space Image scan techniques - applications The BW TV signal and the color PAL signal Op-amp filters used in AV systems Digital modulations Final evaluation	Presentations; Discussions; Applications;	TV signal generator; Oscilloscope; TV receiver; Matlab environment;
References 1. The „Moodle” platform;		

9. Course contents corroboration with the expectations of the epistemic community representatives, professional associations and relevant employers in the field of the program ¹³

In determining the content of this discipline, curricula used in other universities in the country and abroad were consulted. Course objectives are perfectly consistent with the curriculum, passing on information and skills necessary for forming future specialists in electronics, telecommunications and information technology. The skills acquired will be required for employees who work in television engineering systems or image processing.

The discipline uses knowledge and methods presented in the disciplines of signals, circuits and systems, digital and analog integrated circuits, being adequately placed in the timeline of the curriculum.

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Lectures	Acquired theoretical knowledge (amount, correctness, accuracy);	Intermediary evaluation ¹⁴ : 1 theoretical subject; 2 applications, optional	40% (50% from the final evaluation – only for student that choose it)

	Coherence in presentation and proper use of presented notions;	Final evaluation: 3 theoretical subjects; 3 applications	80% (minimum grade of 5)
10.5b Laboratory	- Knowledge of equipment, - Use of specific tools; - Processing and interpretation of results	Evaluation is based on: - Quality of the given assignments - Frequency and pertinence of oral interventions	20% (minimum grade of 5)
10.6 Minimum performance standard ¹⁵			
Obtaining a minimum exam grade and laboratory evaluation of 5.			

Completion date,
05.09.2019

Course organizer,
S.I. dr. ing. Barabăsa Constantin

teaching assistant,
S.I. dr. ing. Barabăsa Constantin

Department approval date,

16.09.19

department director,

Conf. dr. ing. Luminița Scripcariu

¹ Liniile de mai jos se referă la studiul individual; totalul se completează la punctul 3.7.

² Între 7 și 14 ore

³ Între 2 și 6 ore

⁴ Suma valorilor de pe liniile anterioare, care se referă la studiul individual.

⁵ Suma dintre numărul de ore de activitate didactică directă (3.4) și numărul de ore de studiu individual (3.7); trebuie să fie egală cu numărul de credite alocate disciplinei (punctul 3.9) x 24 de ore pe credit.

⁶ Se menționează disciplinele obligatorii a fi promovate anterior sau echivalente

⁷ Competențele din Grilele G1 și G1bis ale programului de studii, adaptate la specificul disciplinei, pentru care se repartizează credite (www.rncis.ro sau site-ul facultății)

⁸ Din planul de învățământ

⁹ Creditele alocate disciplinei se distribuie pe competențe profesionale și transversale în funcție de specificul disciplinei

¹⁰ Titluri de capitole și paragrafe

¹¹ Expunere, prelegere, prezentare la tablă a problematicei studiate, utilizare videoproiector, discuții cu studenții (pentru fiecare capitol, dacă este cazul)

¹² Demonstrație practică, exercițiu, experiment

¹³ Legătura cu alte discipline, utilitatea disciplinei pe piața muncii

¹⁴ Se va preciza numărul de teste și săptămânile în care vor fi susținute.

¹⁵ Se particularizează la specificul disciplinei standardul minim de performanță din grila de competențe a programului de studii.

