UNIVERSITATEA TEHNICĂ DIN CLUJ-NAPOCA
Facultatea de Electronică, Telecomunicații și Tehnologia Informației
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SYLLABUS

1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Electronics, Telecommunications and Information Technology
1.3	Department	Communications
1.4	Field of study	Electronics and Telecommunications Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	Telecommunications Technologies and Systems/Engineer, Applied Electronics/Engineer
1.7	Form of education	Full time
1.8	Subject code	TST-E44.00, EA-E44.00

2. Data about the subject

2.1	Subject name		Television Engineering			
2.2	Subject area		Electronics and Telecommunications Engineering			
2.3	Course responsible/lecturer		Assistant Professor Serban Nicolae MEZA, PhD			
2.4	Teachers in charge of applications		Assistant Professor Serban Nicolae MEZA, PhD			
2.5 Year of study	IV	2.6 Semester	1	2.7 Assessment	Exam	2.8 Subject category DID/DOB

3. Estimated total time

Year/Sem.	Subject name	No. of weeks	Course	Applications			Course	Applications			Indiv. study	TOTAL	Credits
			\[hours/ week\]				\[hours/ semester\]						
				S	L	P		S	L	P			
IV/1	Television Engineering	14	2		2		28		28		74	130	5

3.1	Number of hours per week	4	3.2	of which, course	2	3.3	applications	2
3.4	Total hours in the curriculum	56	3.5	of which, course	28	3.6	applications	28

Individual study	Hours
Manual, lecture material and notes, bibliography	40
Supplementary study in the library, online and in the field	-
Preparation for seminars/laboratory works, homework, reports, portfolios, essays	28
Tutoring	3
Exams and tests	3
Other activities	

3.7	Total hours of individual study	74
3.8	Total hours per semester	130
3.9	Number of credit points	5

4. Pre-requisites (where appropriate)

4.1	Curriculum	NA
4.2	Competence	NA

5. Requirements (where appropriate)

5.1	For the course	Cluj-Napoca
5.2	For the applications	Cluj-Napoca

6. Specific competences

Professional competences	C2. To apply basic methods for signal acquisition and processing C3. To apply knowledge, concepts and basic methods regarding computing systems' architecture, microprocessors, microcontrollers, programming languages and techniques C4. To design, implement and operate data, voice, video and multimedia services, based on the understanding and application of fundamental concepts from the field of communications and information transmission. C6. To solve wide-band telecommunications networks' specific problems: propagation in various transmission media, high frequency circuits and equipment (microwaves and optical).
Cross competences	CT1. To methodically analyze engineering problems, by identifying the basic elements for which well-established solutions already exist, ensuring the fulfillment of the professional assignments

7. Discipline objectives (as results from the key competences gained)

7.1	General objectives	Develop professional competencies in the field of television and video systems.
7.2	Specific objectives	1. Aquire general theoretical knowledgeabout the structure of the television signal 2. Gain the ability to use dedicate software and hardware solution for video editing and processing 3. Analyze and understand 3D image and video based systems

8. Contents

8.1. Lecture (syllabus)		Teaching methods	Notes
1	Television and Video Systems Fundamentals	Presentation, heuristic conversation, exemplification, problem presentation, teaching exercise, case study, formative evaluation	Use of .ppt presentation, projector, blackboard
2	The Basic Structure of the Television Signal		
3	Color in Television and Video		
4	Television Standards		
5	Digital Television		
6	Video Sensors/Sources		
7	Video Rendering Devices		
8	Storing and Transmitting Video		
9	A/V Dedicated Equipment and Systems		
10	(Inter)-Connecting TV Equipment		
11	3D Video Display		
12	3D Video Acquisition & Processing		
13	Emerging TV and Video Technologies		
14	Revision. Preparation for the final exam.		
8.2. Applications (lab)		Teaching methods	Notes

1	Introduction. Laboratory and general equipment presentation. Safety regulations.	Didactic and experimental proof, didactic exercise, team work	Use of laboratory instrumentation, experimental boards, computers, audio & video accquisition boards
2	The Black and White TV Signal		
3	The PAL TV Signal		
4	The NTSC and SECAM TV Signal		
5	Introduction to Adobe Premier		
6	Advanced Video Editing in Adobe Premier		
7	Adding Video Effects and Transitions in Adobe After Effects		
8	Presenting Video Sequences Using Adobe Encore		
9	The RGB to PAL/SECAM Video Signal Conversion		
10	Linear Video Editing and Mixing		
11	Video Switching Matrixes		
12	Professional Photo and Video Cameras		
13	Introduction to 3D TV and Stereoscopic Vision.		
14	Lab recovery and final evaluations		

Bibliography
1. A.Vlaicu - Televiziune alb-negru şi color, Ed. Compress, 1994
2. A.Vlaicu - Transmisia şi recepţia semnalelor de televiziune, Ed. Interferente, 1995
3. B.Orza, D. Ivascanu, A. Vlaicu, T. Samuila – Televiziune aplicată, Ed. UTPress, Cluj-Napoca, 2007
4. J. Whitaker – Master Handbook of Video Production – Ed. McGraw-Hill, 2007
5. H. Zettl – Television Production Handbook – Ed. Thomson&Wadsworth, 2006
6. J. Rice, B. McKernan – Creating digital content - Ed. McGraw-Hill, 2002
7. A Guide to Standard and High-Definition Digital Video Measurements – Tektronics
8. B. Orza, Ş. Meza – Ingineria sistemelor de televiziune – 14 fascicule de laborator – 2012
9. B. Orza – prezentări PowerPoint materiale de curs
10. Y.Wang, J.Ostermann, Y.Zhang, Video Processing and Communications – Prentice Hall, 2002

9. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field

Competences acquired will be used in the following COR occupations (Electronics Engineer; Telecommunications Engineer; Electronics Design Engineer; System and Computer Design Engineer; Communications Design Engineer) or in the new occupations proposed to be included in COR (Sale Support Engineer; Multimedia Applications Developer; Network Engineer; Communications Systems Test Engineer; Project Manager; Traffic Engineer; Communications Systems Consultant).

10. Evaluations

Activity type	10.1	Assessment criteria	10.2	Assessment methods	10.3	Weight in the final grade
Course		The level of acquired theoretical knowledge and practical skills		- Summative evaluation written exam (theory and problems)		E, max 10 pts. 60%
Applications		The level of acquired abilities		- Continuous formative evaluation - practical lab test - lab mini project - lab portofolio assessment		L, max. 10 pts. 40%
10.4 Minimum standard of performance						
L ≥ 5 and E ≥ 4.5 and 0.6E+0.4L ≥ 4.5						

Date of filling in 01.10.2014	Course responsible Lecturer Serban Nicolae MEZA, PhD	Teachers in charge of applications Teaching Assistant Aurelia CIUPE,

Date of approval
in the department
01.10.2014

Head of Communications Department
Professor Virgil DOBROTA, PhD