

## 230026 - TPA - Audiovisual Technology and Production

Coordinating unit:	230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit:	710 - EEL - Department of Electronic Engineering
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Teaching unit Optional)
ECTS credits:	6
Teaching languages:	Catalan, English

### Teaching staff

Coordinator:	- CASAS PLA, JOSEP R. (TSC)
Others:	- CARRIÓN ISBERT, ANTONI (TSC) - MIREYA FERNANDEZ CHIMENO

### Prior skills

Audiovisual Signal Processing  
Fundamentals of Communications  
Acoustics & Electroacoustics

### Requirements

INTRODUCTION TO AUDIOVISUAL SIGNAL PROCESSING - Prerequisite  
INTRODUCTION TO COMMUNICATIONS - Prerequisite  
ACOUSTICS & ELECTROACOUSTICS - Prerequisite

### Degree competences to which the subject contributes

Transversal:

06 URI N3. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

### Teaching methodology

Theory sessions (3h/week) and lab sessions (2h/week).  
Group assignments and individual assignments, exercises, oral presentations.  
Tests, short answer and long answer questionnaires.  
AV production project (term project)

### Learning objectives of the subject

The course covers basic technologies in audiovisual (AV) production from an engineering perspective. The basics of operation (operator view) in AV production scenarios are briefly introduced. The aim is introducing students to production environments while acquiring skills for the design, installation, configuration and maintenance of production rooms and equipment (engineering view). The contents follow the signal path through the production chain, departing from technical design of sets ¿acoustics, lighting¿, analyzing equipment and functions along the production path ¿sensors, channels,



## 230026 - TPA - Audiovisual Technology and Production

processing, recording, playback and monitoring, and ending up in AV display and monitoring.

### Study load

Total learning time: 150h	Hours large group:	39h	26.00%
	Hours small group:	26h	17.33%
	Self study:	85h	56.67%

## 230026 - TPA - Audiovisual Technology and Production

### Content

<p>1. Introduction. Production Path</p>	<p>Learning time: 17h Theory classes: 3h Laboratory classes: 4h Self study : 10h</p>
<p>Description: Introduction to the audiovisual (AV) production chain. The various elements composing the AV production chain are introduced by following the signal flow in production facilities.</p> <p>Related activities: Lab1: Lab Introduction Lab2: LabMU Studio Introduction</p> <p>Specific objectives: 1.1 Introduction to audiovisual production 1.2 Production path: audiovisual sources and processing equipment 1.3 Production scenarios: sets, audio and lighting</p>	
<p>2. Acoustics and Lighting in Production Sets</p>	<p>Learning time: 23h Theory classes: 9h Laboratory classes: 2h Self study : 12h</p>
<p>Description: Audio recording, Physiological/Psychoacoustics, Studio Acoustics. Lighting: intro, equipment, measurement and safety</p> <p>Related activities: Lab 5: Sets and Lighting</p> <p>Specific objectives: 2.1 Introduction to Acoustics 2.2 Introduction to Audio Recording 2.3 Physiological Acoustics and Psychoacoustics 2.4 ¿ 2.6 Studio Acoustics: geometry, absorption, diffusion, isolation, noise &amp; vibration control 2.7 Introduction to lighting 2.8 ¿ 2.9 Basic elements of lighting. Lighting equipment. 2.10 ¿ 2.12 Lighting equipment control. Gripology. Light measurement. Safety issues</p>	

## 230026 - TPA - Audiovisual Technology and Production

<h3>3. AV Recording and Sensors</h3>	<p>Learning time: 17h</p> <p>Theory classes: 5h Laboratory classes: 2h Self study : 10h</p>
<p>Description: Sensors in AV recording: audio sensors and video sensors. Microphones: types and configuration in studios. Cameras: types and studio configurations. Interaction among AV sensors.</p> <p>Related activities: Lab 6: Recording &amp; Sensors: Cameras</p> <p>Specific objectives: 3.1 Studio microphones 3.2 Audio recording configuration: LEDE rooms, RFZ+diffusion rooms 3.3 Introduction to cameras 3.4 Camera sensors and camera lens 3.5 Types of cameras, Cameras' operation and configuration</p>	
<h3>4. Studio Signals</h3>	<p>Learning time: 26h</p> <p>Theory classes: 7h Laboratory classes: 4h Self study : 15h</p>
<p>Description: Review of main signals present in a production studio. Professional video and audio signals.</p> <p>Related activities: Lab 7: AV Studio Signals: formats Lab 8: AV Studio Signals: graphics</p> <p>Specific objectives: 4.1 ¿ 4.2 AV signal concepts 4.3 ¿ 4.6 Video &amp; Audio signals 4.7 Image and graphics</p>	

## 230026 - TPA - Audiovisual Technology and Production

<p>5. Production Equipment and Processing</p>	<p>Learning time: 26h Theory classes: 7h Laboratory classes: 4h Self study : 15h</p>
<p>Description: Studio processing stages and equipment.</p> <p>Related activities: Lab 9: Studio rooms: sets, switching and mixers Lab 10: Studio rooms: scheduling and control</p> <p>Specific objectives: 5.1 Mixers and switching 5.2 ¿ 5.3 Program scheduling. Control and monitoring 5.4 Recording and formats conversion 5.5 Graphics, effects, post-production 5.6 ¿ 5.7 TV headers and TV production</p>	
<p>6. Audiovisual Display Systems</p>	<p>Learning time: 16h Theory classes: 4h Laboratory classes: 2h Self study : 10h</p>
<p>Description: Audiovisual monitoring and display</p> <p>Related activities: Lab 11: Displays, Monitoring and Postproduction</p> <p>Specific objectives: 6.1 ¿ 6.3 Video monitors and displays 6.4 Studio monitors (loudspeakers)</p>	

## 230026 - TPA - Audiovisual Technology and Production

<p>7. Audiovisual Production Scenarios</p>	<p>Learning time: 19h Theory classes: 3h Laboratory classes: 4h Self study : 12h</p>
<p>Description: Studio scenarios and new trends: tapeless production, digital convergence, 3D, format agnostic production...</p> <p>Related activities: Lab 12: Complete production path (I) Lab 13: Complete production path (II)</p> <p>Specific objectives: 7.1 Production scenarios 7.2 New trends: convergence, 3D video, 3D audio, format agnostic production 7.3 Studio visit</p>	
<p>Term project</p>	<p>Learning time: 31h Laboratory classes: 4h Other activities: 15h Assessment sessions: 2h Self study : 10h</p>
<p>Description: AV Production project</p> <p>Related activities: Lab 3: Term Project preparation (I) Lab 4: Term Project preparation (II)</p> <p>Specific objectives: Produce a short clip working in a production team. Steps to follow: idea selection, role assignment (producer, writer, director, cast, camera operators, assistants...), generate treatment, collaborative scriptwriting, planning (resources, schedule), production, postproduction and presentation</p>	

### Qualification system

Control (CNT): 15%

Final exam (EX): 40%

Labs (LAB): 25% (attendance required + lab reports)

Term project (PROJ): 20%

ASSESSMENT = MAX( 0,15 CNT +0,40 EX +0,25 LAB +0,20 PROJ ; 0,75 EX +0,25 LAB)

## 230026 - TPA - Audiovisual Technology and Production

### Bibliography

#### Basic:

Gross, L.S.; Foust, J.C. Video production: disciplines and techniques. 10th ed. Scottsdale, Arizona: Holcomb Hathaway, 2009. ISBN 9781890871871.

Alten, S.R. Audio in media. 9th ed. Belmont: Wadsworth/Thomson Learning, 2011. ISBN 053874362X.

Poynton, C.A. Digital video and HD: algorithms and interfaces [on line]. 2nd ed. Waltham: Morgan Kaufman, 2012 [Consultation: 27/01/2015]. Available on: <<http://site.ebrary.com/lib/upcatalunya/docDetail.action?docID=10537913>>. ISBN 9780123919328.

#### Complementary:

Brown, B. Motion picture and video lighting. 2nd ed. Boston: Focal Press (Elsevier), 2008. ISBN 9780240807638.

Reese, D.E.; Gross, L.S.; Gross, B. Audio production worktext: concepts, techniques, and equipment. 6th ed. Burlington: Elsevier Focal Press, 2009. ISBN 978-0-240-81098-0.

Huber, D.M.; Runstein, R.E. Modern recording techniques [on line]. 7th ed. Burlington, MA: Focal Press, 2009 [Consultation: 22/05/2013]. Available on: <<http://site.ebrary.com/lib/upcatalunya/docDetail.action?docID=10406836>>. ISBN 9780080928036.