Course Syllabus

DIGITAL TELEVISION

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Program: Telecommunications Engineering

1. Course number and name

TELG1016 - DIGITAL TELEVISION

2. Credits and contact hours

2 credits and 2 contact hours

3. Instructor's course or coordinator's name

ALFREDO JOSÉ NÚÑEZ UNDA

4. Text book, tittle, author, and year

• Weynand, D. and Piccin, V.. How Video Works: From Broadcast to the Cloud, 3rd Edition (3rd Edition)

a.Other supplemental materials

• Collins, G.. Fundamentals of Digital Television Transmission (1st)

• Gordon, D.. Coding and Modulation for Digital Television (1st)

• Watkinson, J.. The Art of Digital Video (4th)

• Poyton, C.. Digital Video and HD: Algorithms and Interfaces (2nd)

• O'Driscoll, G.. Next Generation IPTV Services and Technologies (1st)

5. Specific course information

a. Brief description of the content of the course (catalog description)

This course deals with the integration of telecommunications systems inherent in the generation, transmission and reception of digital television signals, both open and encrypted audio and video subscription systems that are transmitted via cable, satellite or Internet networks. In addition, television (TV) studios, headends of cable systems, and content distribution networks (CDNs) are analyzed, both in production and transmission using digital standards. Finally, it describes the provision of new services in hybrid fiber-coaxial networks (HFC) of cable systems and services over any network (OTT), and video-on-demand service (VoD) based on CDNs under IP protocol.

b. Co - Requisites

PROPAGATION - TELG1015

c. This course is: Required

6. Specific goals for the course

a. Specific outcomes of instruction

1.- To describe the processes of digitizing audio and video, together with those of coding and compression using mathematical models.

2.- To differentiate the parameters of digital television standards, for their application in telecommunications systems.

3.- To design transport systems that allow the pass of multiple digital TV signals through IP protocols.

4.- To determine the technical aspects under which television services are provided over any network (OTT) and video on demand (VoD), using server-based networks for content distribution (CDN).

b. Explicity indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

- A knowledge of contemporary issues
- An ability to communicate effectively in English

7. Brief list of topics to be covered

1.- Introduction to analog television.
2.- Digitalization of television signals.
3.- Discrete cosine transform (DCT).
4.- Entropy coding.
5.- Channel coding for the detection and correction of errors in the transmission medium
6.- Model of a television channel and television networks.
7.- Digital television on internet networks.
8.- Content delivery networks (CDN) and free transmission services (OTT).