

COURSE	Name	: Broadcast Engineering
	Code	: EE185531
	Credit(s)	: 2
	Semester	: (Elective Course)

Description of Course

The Broadcasting Engineering course provides a basic knowledge of broadcasting system as a part of the field of Multimedia Telecommunications Engineering. This course examines the standards and regulations in the fields of analog and digital broadcasting, broadcasting business models, to the basic design of analog and digital broadcasting systems, including technology to optimization of parameters of digital broadcasting techniques and measurement of performance associated with channel conditions, as well as the desired amount and quality of transmission.

Learning Outcomes

Knowledge

(P01) Mastering the concepts and principles of science in a comprehensive manner, and to develop procedures and strategies needed for the analysis and design of systems related to the field of power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics as a preparation for further education or professional career.

Specific Skill

(KK01) Being able to formulate engineering problems with new ideas for the development of technology in power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

(KK02) Being able to compose problem solving in engineering through depth and breadth of knowledge which adapts to changes in science and technology in power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

General Skill

(KU11) Being able to implement information and communication technology in the context of execution of his/her work.

Attitude

(S09) Demonstrating attitude of responsibility on work in his/her field of expertise independently.

(S12) Working together to be able to make the most of his/her potential.

Course Learning Outcomes

Knowledge

Mastering the concepts, principles, and procedures for designing the broadcasting system, which involves 3 main aspects, namely the regulatory aspect, aspects of the broadcasting business implementation model, and aspects of analog and digital broadcasting technology.

Specific Skill

Able to formulate engineering through survey budget design and link budget design and selection of analog and digital broadcasting parameters in order to obtain a broadcasting system with adequate service and quality coverage in accordance with applicable standards and regulations in the broadcasting field, including alternative solutions to other problems

General Skill

Having the ability to design analog and digital broadcasting systems by taking into account the aspects of broadcasting; transmission media (terrestrial, satellite and via cable); and signal reception, based on the results of analysis of information and data.

Attitude

Demonstrate learning outcomes for law obedience through regulation learning and working together to make the most of their potential.

Main Subjects

1. Definition and introduction of broadcasting systems
2. Telecommunications Law and Broadcasting Law
3. Ministerial Decree (KM) concerning Broadcasting (Masterplan etc.)
4. Design of Analog and Digital Broadcasting Systems: Regulation, Business and Technology Models
5. Link budget design in radio systems based on KM
6. Link budget design in analog television systems based on KM
7. Digital Broadcasting Standards
8. Digital audio and video techniques, Source Encoding Techniques
9. Channel Encoding Technique (Error Correction)
10. Digital Modulation Techniques in Broadcasting, including COFDM techniques
11. Digital Video Broadcasting (DVB-T, DVB-T2, DVT-T2 Lite)
12. Basic optimization of digital broadcast transmission parameters
13. Frequency Allocation Technique: MFN-SFN
14. Measurement of Digital Broadcast performance

Reference(s)

- [1] UU Telekomunikasi (Telecommunications Law)
- [2] UU Penyiaran (Broadcasting Law)
- [3] KM. 15/2003, KM 76/2003 and its successor
- [4] ETSI EN.744
- [5] K. Blair B & Jerry W, "Television and Audio Handbook for technician and Engineer", McGraw-Hill, 1990
- [6] Walter Fischer, Digital Video & Audio Broadcasting Technology: A Practical Engineering Guide, , 3rd Edition, Rohde-Schwarz, Springer-Verlag, 2010
- [7] Endroyono, dkk., "Modul Ajar Kuliah Rekayasa Penyiaran S2", 2017

Prerequisite(s)

- Propagation and Radiation
 - Digital Communication Systems
 - Multimedia Signal Processing
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