INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)
FAKULTAS TEKNOLOGI ELEKTRO DAN INFORMATIKA CERDAS
DEPARTEMEN TEKNIK ELEKTRO
Program Studi Sarjana (S1) Teknik Telekomunikasi

1	**Nama Mata Kuliah**	:	Sistem Broadcast
2	**Kode Mata Kuliah**	:	EL234708
3	**Kredit**	:	3 SKS
4	**Semester**	:	Pilihan

Deskripsi Mata Kuliah

Mata kuliah Broadcasting ini merupakan mata kuliah pilihan di Program Studi di Teknik Telekomunikasi Departemen Teknik Elektro ITS. Di era informasi ini, lapangan kerja sangat membutuhkan kompetensi brodcasting engineer, baik penyiaran on-air (melalui udara) maupun penyiaran off-air (melalui media telekomunikasi yang lain.

Terdapat 5 capaian yang diharapkan akan dikuasai oleh para mahasiswa peserta kuliah Sistem Broadcasting ini, yaitu

(1) Mahasiswa memahami definisi, komponen teknologi pembentuk Sistem Broadcast, mulai dari pemancar, media dan penerima, termasuk review aspek pengolahan sinyal dan modulasi

(2) Mahasiswa memahami aspek proses bisnis di Sistem Broadcasting, khususnya proses bisnis yang dikaitkan dengan penyiaran digital.

(3) Mahasiswa memahami aspek regulasi di Sistem Broadcasting, bahwa sistem Broadcasting hanya dapat diterapkan apabila mengikuti regulasi, baik regulasi internasional maupun regulasi nasional dari undang-undang Telekomunikasi, undang-undang penyiaran, Perpu, Perpres, hingga Keputusan Menteri dan aturan dibawahnya.

(4) Sebagai studi kasus, mahasiswa mendapatkan tugas perancangan sistem broadcasting dengan menggunakan pengetahuan proses bisnis, regulasi dan teknologi yang telah dipelajari

(5) Sebagai penguat, mahasiswa akan melakukan pengukuran kualitas penyiaran di laboratorium maupun di lapangan, termasuk belajar survey rating.

Capaian Pembelajaran Lulusan (CPL) Yang Dibebankan Mata Kuliah

1. (CPL-02) Mampu mengkaji dan memanfaatkan ilmu pengetahuan dan teknologi dalam rangka mengaplikasikannya pada bidang Teknik Telekomunikasi, serta mampu mengambil keputusan secara tepat dari hasil kerja sendiri maupun kerja kelompok dalam bentuk laporan tugas akhir atau bentuk kegiatan pembelajaran lain yang luarannya setara dengan tugas akhir melalui pemikiran logis, kritis, sistematis dan inovatif.
2. (CPL-07) Mampu mengidentifikasi, memformulasikan, menganalisis, dan menyelesaikan permasalahan kompleks di bidang teknik telekomunikasi
3. (CPL-08) Mampu mengetahui dan mengaplikasi metode dan keahlian sesuai perkembangan terkini di bidang ilmu pengetahuan dan teknologi untuk

menyelesaikan permasalahan di bidang Teknik Telekomunikasi dengan mengedepankan nilai-nilai universal

Capaian Pembelajaran Mata Kuliah

1. Mampu menjelaskan konsep dasar sistem Broadcasting/ sistem penyiaran analog dan digital
2. Mampu menjelaskan karakteristik komponen, sifat media, dan proses bisnis sistem Broadcasting
3. Mampu menjelaskan aspek regulasi dalam sistem broadcasting
4. Mampu melakukan perancangan dan pengukuran kinerja sistem Broadcasing dengan memperhatikan aspek proses bisnis, regulasi dan teknologi yang tepat

Pokok Bahasan

1. Definsi dan pengenalan sistem broadcasting
2. Konsep Bisnis Broadcasting/ Penyiaran
3. Review modulasi analog (siskom analog) dalam sistem penyiaran analog
4. Review modulasi digital (siskom digital) dalam sistem penyiaran digital
5. Review Undang-undang Telekomunikasi dan Review Undang-undang Penyiaran
6. Review Keputusan Menteri Master-plan frekuensi dalam sistem Broadcasting Analog
7. Review Keputusan Menteri tentang Penyiaran Digital, khususnya Digital Video Broadcast (DVB)
8. Disain/ perancangan (1): parametrisasi radio pemancar FM
9. Disain/ perancangan (2): parametrisasi pemancar televisi digital DVB-T2, SFN,
10. Pengukuran Sinyal Siaran
11. Survey Rating Penyiaran, MOS dll.

Prasyarat

Sistem Komunikasi, Elektronika Telekomunikasi

Pustaka

Utama :

1. Endroyono, Hand-out Kuliah Sistem Broadcasting
2. Bensor – Whitaker, “Television and Audio handbook” McGraw-Hill Inc., 1990
3. Andrew F. Iglis, “Video Engineering” McGraw-Hill Inc., 1993
4. Walter Fischer, “Digital Video and Audio Broadcasting Technology: A Practical Engineering Guide”Springer, R&S, 2010
5. UU Telekomunikasi, Keputusan Presiden, Keputusan Menteri (KM), Keputusan Dirjen terkait Telekomunikasi dan Penyiaran
6. UU Penyiaran, termasuk Keputusan Menteri tentang Penyiaran Digital

Pendukung :

1. ETSI Recommendation related to broadcasting
2. ITU-T recommendation related to broadcasting
3. ITU-R recommendation related to broadcasting
4. Pustaka lain yang diberikan sesuai kebutuhan

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FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
Undergraduate Study Program (S1) Telecommunication Engineering

1	**Course Name**	:	Broadcast System
2	**Course Code**	:	EL234708
3	**Credit**	:	3 CREDITS
4	**Semester**	:	Options

Course Description

This Broadcasting course is an elective course in the Telecommunication Engineering Study Program at the Department of Electrical Engineering ITS. In this information age, employment is in dire need of broadcasting engineer competencies, both on-air broadcasting and off-air broadcasting through other telecommunications media.

There are 5 outcomes that are expected to be mastered by students participating in this Broadcasting System course, namely

(1) Students understand the definition and technological components that make up the Broadcast System, starting from transmitters, media, and receivers, including a reviewof signal processing and modulation aspects.

(2) Students understand aspects of business processes in Broadcasting Systems, especially business processes associated with digital broadcasting.

(3) Students understand the regulatory aspects of the Broadcasting System, that the Broadcasting System can only be implemented if it follows regulations, both international regulations and national regulations from Telecommunications laws, broadcasting laws, Perpu, Perpres, to Ministerial Decrees and the rules below.

(4) As a case study, students are assigned the task of designing a broadcasting system using the knowledge of business processes, regulations and technologies that have been learned.

(5) As reinforcement, students will conduct broadcast quality measurements in the laboratory and in the field, including learning rating surveys.

Graduate Learning Outcomes (SLOs) Charged Courses

1. (CPL-02) Able to study and utilize science and technology in order to apply it in the field of Telecommunication Engineering and be able to make decisions appropriately from the results of their own work and group work in the form of a final project report or other forms of learning activities whose output is equivalent to the final project through logical, critical, systematic and innovative thinking.
2. (CPL-07) Able to identify, formulate, analyze, and solve complex problems in the field of telecommunications engineering.
3. (CPL-08) Able to know and apply methods and expertise according to the latest developments in science and technology to

solving problems in the field of Telecommunication Engineering by prioritizing universal values

Course Learning Outcomes

1. Able to explain the basic concepts of Broadcasting system/analog and digital broadcasting system.
2. Able to explain the characteristics of components, media properties, and business processes of Broadcasting systems.
3. Able to explain regulatory aspects in broadcasting systems.
4. Able to design and measure the performance of the Broadcasting system by paying attention to aspects of business processes, regulations, and appropriate technology.

Subject matter

1. Definition and introduction of broadcasting system
2. Broadcasting Business Concept
3. Review of analog modulation (analog siskom) in analog broadcasting systems
4. Review of digital modulation (digital siskom) in digital broadcasting systems
5. Review of Telecommunication Law and Review of Broadcasting Law
6. Review of Ministerial Decree Masterplan of frequencies in Analog Broadcasting system
7. Review of Ministerial Decree on Digital Broadcasting, specifically Digital Video Broadcast (DVB)
8. Design (1): parametrization of FM radio transmitters
9. Design (2): parametrization of DVB-T2, SFN digital television transmitter,
10. Broadcast Signal Measurement
11. Broadcasting Rating Survey, MOS etc.

Prerequisites

Communication Systems, Telecommunication Electronics

Library

Main:

1. Endroyono, Hand-out for Broadcasting System Lecture
2. Bensor - Whitaker, "Television and Audio handbook" McGraw-Hill Inc. 1990
3. Andrew F. Iglis, "Video Engineering" McGraw-Hill Inc. 1993
4. Walter Fischer, "Digital Video and Audio Broadcasting Technology: A Practical Engineering Guide" Springer, R&S, 2010
5. Telecommunication Law, Presidential Decree, Ministerial Decree (KM), Director General Decree related to Telecommunication and Broadcasting
6. Broadcasting Law, including the Ministerial Decree on Supporting

Digital Broadcasting:

1. ETSI Recommendation related to broadcasting.
2. ITU-T recommendation related to broadcasting.
3. ITU-R recommendation related to broadcasting.
4. Other libraries provided as needed