



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

1	Nama Mata Kuliah / Course Name :	Sistem Broadcast / <i>Broadcasting System</i>
2	Kode Mata Kuliah / Course Code :	EL234708
3	Kredit / Credits :	3 SKS
4	Semester / Semester :	Pilihan / <i>Elective Course</i>

Deskripsi Mata Kuliah / Course Description

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 broadcasting 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.

The Broadcasting course is an elective course in the Telecommunication Engineering Program at the Department of Electrical Engineering at ITS. In this era of information, the job market requires competent broadcasting engineers, both for on-air broadcasting (via the airwaves) and off-air broadcasting (via other telecommunication media).

There are 5 learning outcomes that students are expected to achieve in the Broadcasting System course, which are:

(1) Students understand the definition and technological components that form the Broadcasting System, ranging from transmitters, media, and receivers, including reviews of signal processing and modulation aspects.

(2) Students understand the business processes in the Broadcasting System, particularly those related to digital broadcasting.

(3) Students understand the regulatory aspects of the Broadcasting System, which can only be implemented if they comply with regulations, both international and national regulations from Telecommunication laws, broadcasting laws, Perpu, Perpres, to Ministerial Decisions and their regulations.

(4) As a case study, students are given assignments to design a broadcasting system using the knowledge of business processes, regulations, and technology they have learned.

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

Capaian Pembelajaran Lulusan (CPL) Yang Dibebankan Mata Kuliah / Program Learning Outcomes Charged to The Course

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.
(PLO-02) Be able to study and utilize science and technology in order to apply it to the field (study program expertise), and able to make appropriate decisions from the results of their own work or group work in the form of a final project report or other forms of learning activities whose output is equivalent to a final project through logical, critical, systematic, and innovative thinking.*
2. (CPL-07) Mampu mengidentifikasi, memformulasikan, menganalisis, dan menyelesaikan permasalahan kompleks di bidang teknik telekomunikasi
(PLO-07) Able to identify, formulate, analyze, and solve the complex problems in the field of Telecommunication Engineering
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
(PLO-08) Able to know and apply methods, skills according to the latest developments in the field of science and technology to solve electrical engineering problems by prioritizing universal values

Capaian Pembelajaran Mata Kuliah / Course Learning Outcomes

1. Mampu menjelaskan konsep dasar sistem Broadcasting/ sistem penyiaran analog dan digital / *Able to explain the basic concepts of Broadcasting system/ analog and digital broadcasting system*

2. Mampu menjelaskan karakteristik komponen, sifat media, dan proses bisnis sistem Broadcasting / *Able to describe the characteristics of components, media properties, and business processes of Broadcasting system*
3. Mampu menjelaskan aspek regulasi dalam sistem broadcasting / *Able to explain the regulatory aspects of Broadcasting system*
4. Mampu melakukan perancangan dan pengukuran kinerja sistem Broadcasting dengan memperhatikan aspek proses bisnis, regulasi dan teknologi yang tepat / *Able to design and measure the performance of Broadcasting system, taking into account appropriate business process, regulatory, and technological aspects.*

Pokok Bahasan / Contents

1. Definsi dan pengenalan sistem broadcasting / *Definition and Introduction to Broadcasting System*
2. Konsep Bisnis Broadcasting/ Penyiaran / *Broadcasting / Transmission Business Concept*
3. Review modulasi analog (siskom analog) dalam sistem penyiaran analog / *Review of Analog Modulation (Analog Communication Systems) in Analog Broadcasting Systems*
4. Review modulasi digital (siskom digital) dalam sistem penyiaran digital / *Review of Digital Modulation (Digital Communication Systems) in Digital Broadcasting Systems*
5. Review Undang-undang Telekomunikasi dan Review Undang-undang Penyiaran / *Review of Telecommunications Law and Broadcasting Law*
6. Review Keputusan Menteri Master-plan frekuensi dalam sistem Broadcasting Analog / *Review of Ministerial Decisions on Frequency Master Plan in Analog Broadcasting System*
7. Review Keputusan Menteri tentang Penyiaran Digital, khususnya Digital Video Broadcast (DVB) / *Review of Ministerial Decisions on Digital Broadcasting, especially Digital Video Broadcast (DVB)*
8. Disain/ perancangan (1): parametrisasi radio pemancar FM / *Design (1): FM radio transmitter parameterization*
9. Disain/ perancangan (2): parametrisasi pemancar televisi digital DVB-T2, SFN,
10. Pengukuran Sinyal Siaran / *Design (2): Parameterization of DVB-T2 digital television transmitter, SFN*
11. Survey Rating Penyiaran, MOS dll. / *Broadcasting Rating Survey, MOS, etc.*

Prasyarat / Pre-requisite

Sistem Komunikasi, Elektronika Telekomunikasi / *Communication Systems, Telecommunication Electronics*

Pustaka / Reference

Utama / *Primary :*

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 / Support :

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