

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: COMMUNICATION SYSTEMS

Code No.: ELN 245-6

Program: ELECTRONIC TECHNICIAN

Semester: FOUR

Date: AUGUST, 1986

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New: _____ Revision: X

APPROVED: *J.P. Crozetto*
Chairperson

Date

COMMUNICATIONS SYSTEMS II

ELN 245

Course Name

Course Number

GOALS:

A second course in Analog electronic communications at a Technology level.

The principles of FM, Stereophonic Broadcasting, Black and White Television, Colour Television and advanced communications techniques are studied.

The emphasis is on the presentation of electronic analog systems based on the circuits studied in ELN 237-8.

METHOD OF ASSESSMENT:

3 written tests	75%
Lab reports and practical tests	25%

TEXTBOOKS:

"Modern Electronic Communication" by Gary M. Miller
"Basic Television and Video Systems" by Bernard Grob

OBJECTIVES:

BLOCK I

FM PRINCIPLES

Modulation index
Power distribution in the FM wave
Bandwidth requirements
Bessel functions
Deviation ratio
Phase modulation
Preemphasis and deemphasis

FM RECEIVERS

Block diagram
FM limiter
foster-seeley discriminator
Ratio detector
PLL demodulator
FM detector alignments

OBJECTIVES - Continued

BLOCK II

FM TRANSMITTERS

The direct method
The indirect method
Reactangle modulator
Varactor modulator
Crosby FM system
Phase modulator

STEREOPHONIC BROADCASTING

Block diagram of transmitter
Block diagram of receiver
Stereo Demodulation
SCA decoder
Linear IC stereo decoders

BLOCK III

THE TELEVISION SYSTEM

BLACK AND WHITE TELEVISION

Scanning a picture
Picture elements
Interlaced scanning
Horizontal and vertical deflection
Frame and fields
Blanking
Synchronization
Aspect ratio and resolution
TV cameras and picture tubes
The television signal

B & W TELEVISION RECEIVERS

Tuner (UHF AND VHF)
IF Amplifiers
The audio section
The video section
Sync. and vertical deflection
Horizontal deflection and high voltage

BLOCK IV

THE TELEVISION SYSTEM

PRINCIPLES OF COLOUR TELEVISION

The luminence signal
The chrominance signal
The principles of colour generation
HUE, saturation and brightness
The Colour TV camera and picture tube
The colour subcarrier
The R-Y, G-Y, and B-Y signals
The bandwidth of a colour TV signal
Colour Burst signal
The composit colourplexed video signal
Block diagram of a colour TV receiver
Detailed block diagram of the colour circuits

THE COLOUR TELEVISION RECEIVER

Circuit analysis of the stages of a colour TV receiver

BLOCK V

COMMUNICATIONS TECHNIQS

Double frequency conversion
UP conversion
Delayed AGL
Auxiliary AGL
Bandspreading
Variable Sensitivity
Variable Selectivity
Noise Limiter
The Meter
Squelch
CB transcievers
CB frequency synthesizers
Facsimile
Mobile telephone
The communications transceiver