

DESIGN AND DEVELOPMENT OF AN EDUCATIONAL FM
BROADCAST STATION FOR CAVITE STATE
UNIVERSITY - MAIN CAMPUS

Design Project

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**DESIGN AND DEVELOPMENT OF AN EDUCATIONAL FM BROADCAST STATION
FOR CAVITE STATE UNIVERSITY - MAIN CAMPUS**

**Undergraduate Design Project
Submitted to the Faculty of the
Cavite State University
Indang, Cavite**

**In Partial Fulfillment
of the Requirements for the Degree of
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*Design and development of an educational
FM broadcast station for Cavite State
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ABSTRACT

BAUTISTA, RUBIELYN R. and BOBADILLA, KATRINA P. Design and Development of an Educational FM Broadcast Station for Cavite State University – Main Campus. Undergraduate Design Project. Bachelor of Science in Electronics and Communication Engineering, Cavite State University, Indang, Cavite. February 2012: Engr. Michael T. Costa.

The main objective of the study was to design a studio for FM broadcast station. Specifically, it aimed to construct an FM transmitter that can broadcast signal within the entire university. It aimed to construct an omni-directional antenna intended for the FM transmitter. Furthermore, it aimed to determine the cost of FM broadcast studio and FM transmitter.

The design project was composed of three studio designs, an FM transmitter and an antenna which was connected to the antenna port of the transmitter, a DVD player that serves as the audio input; and an FM radio as a receiver. A reverberation time ranging from 0.2 to 0.6 second was the basis in classifying the possible acoustic materials to be used inside the studio. The FM transmitter was constructed with the FM modulator, regulated power supply, power amplifier circuit and audio meter signal.

The computed reverberation time and cost of materials in each studio were used as an evaluation of the three proposed studios.

The FM transmitter was installed and evaluated at the fourth floor of Ladislao N. Diwa Memorial Library and Museum. The maximum distance of transmission and clarity and fidelity of the reception were determined by using an ordinary FM radio receiver in different locations. It was also evaluated by the mass communications students of Cavite State University for they will soon use the design project.

Based on the data and results gathered, the third design met the required reverberation time of 0.2 to 0.6 second and cost less as compared to the first two designs. The constructed FM

transmitter connected to an omni-directional antenna can transmit signal within the entire university. The device can operate twenty four hours. The transmission will be greatly affected by obstruction like trees and structures.

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INTRODUCTION

Communication is the basic process of exchanging information. It is what human do to convey their thoughts, ideas and feelings to one another. One way of how human communicate is via broadcasting. Broadcasting is the distribution of audio and video content to a dispersed audience via broadcast radio, broadcast television, or other technologies; receiving parties may include the general public or a relatively large subset of thereof.

Radio broadcasting is one type of electronic broadcasting. It is an audio or broadcast service; broadcast through air as radio waves from a transmitter to a radio antenna and, thus to a receiver. One variety of radio system is the FM or the frequency modulation, which conveys information over a carrier wave by varying its instantaneous frequency. FM is widely used for broadcasting of music and speech.