

**DESIGN, CONSTRUCTION AND TESTING OF A LOW-POWERED FM
TRANSMITTER TRAINING MODULE FOR THE ELECTRONICS AND
COMMUNICATIONS ENGINEERING LABORATORY**

**A Special Problem
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MASTER OF ENGINEERING**



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ABSTRACT

This study aimed to impart further understanding of students and individuals by enhancing their skills in application of the basic principle and operation of Frequency Modulation (FM) with the actual set-up of the FM transmitter system. The training module is comprised of five building blocks: the power supply, the FM modulator, RF Amplifier, SWR meter and the antenna/dummy load assembled in a panel box or module with terminal connectors for easy installation and experimentation. Each component block meets the following requirements: power supply output voltage of 28 VDC and 15 VDC; the FM modulator circuit output frequency set to 104.5 MHz; the transmitter unit with maximum power of 20-W and an SWR reading at 1.0 to 1.5. The components were evaluated and gave the following results: power supply is working normally with an output voltage that ranges from 30.5 VDC and 15.2 VDC, FM modulator circuit providing an output frequency of 104.5 MHz with the FM transmitter unit providing an output power of 18.2 W and SWR reading of 1.3. It can be concluded that all components and features of the trainer were tested and gave satisfactory results purposely to be used in the Electronics and Communications Engineering Laboratory.