SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

# COURSE OUTLINE

Course Title: PULSE CIRCUITS

Code No.: ELN 211

Program: NON-SEMESTERED ELECTRONIC TECHNICIAN PROGRAM

Semester: THREE

Date: MAY 23, 1984

Author: P. SZILAGYI

New: X Revision: _____

APPROVED: _____ _____

Chairperson Date

# PULSE CIRCUITS
## ELN 211

NUMBER OF THEORY PERIODS: 21
NUMBER OF LABORATORY PERIODS: 21

PREREQUISITES: ELN 101, Electronic II

TEXTBOOKS: Fundamentals of Pulse and Digital Circuits (3rd Ed.), by Ronald F. Tocci

| BLOCKS | THEORY PERIODS | TOPIC DESCRIPTION | REFERENCE CHAPTERS |
|---|---|---|---|
| I | 7 | Pulse Waveform Analysis<br>RC Circuits | 1, 2<br>3 |
| II | 6 | Switching Devices<br>Signal Conditioning Circuits | 4<br>6 |
| III | 8 | Pulse Generating Circuits<br>Tektronic Oscilloscope Model | 11<br>11 |

# OBJECTIVES

| BLOCK I: | | THEORY PERIODS |
|---|---|---|
| Introduction | - Ideal pulse signals<br>- Ideal switching devices | 1 |
| Pulse Waveform Analysis | - Pulse distortion<br>- Periodic pulse waveforms<br>- Harmonic content of periodic waveforms<br>- Non-periodic pulse | 2 |
| RC Circuits | - The exponential form<br>- RC low-pass circuits<br>- RC high-pass circuits<br>- RC circuit response to periodic inputs | 3 |
| BLOCK TEST | | 1 |
| **BLOCK II:** | | |
| Switching Devices | - The diode as a switch<br>- The BJT as a switch<br>- Field effect transistor switches | 2 |
| Signal Conditioning Circuits | - Diode clippers<br>- Operational amplifier clipper<br>- Transistor inverter<br>- Buffer circuits<br>- Differential comparator<br>- The schmitt trigger | 3 |
| BLOCK TEST | | 1 |
| **BLOCK III:** | | |
| Pulse Generating Circuits | - Unijunction oscillator circuit<br>- Programmable UJT (PUT)<br>- Schmitt trigger oscillators<br>- One shot circuits connected as an oscillator<br>- Oscillators made from inverters | 3 |

# LABORATORY ACTIVITY

JOB 2 Effect of Low Pass and High Pass Filters on Pulse Waveforms

JOB 3 RC Circuit Response to a Pulse Train

JOB 4 Diode and Transistor Switching Parameters

JOB 5 Differential Comparator and Schmitt Trigger

JOB 6 Pulse Generating Circuits

JOB 7 Sweep Generating Circuits