**ELTR 100- Electrical Network Analysis**

**Course Overview**

* Unit 1 - Basic concepts, electrical quantities, electrical components, Ohm’s Law, Kirchhoff’s Laws, series circuits, parallel circuits, series-parallel circuits. (Ch. 1-6)
* Unit 2 - Network theorems, networks analysis techniques, Thevenin’s Theorem, Norton’s Theorem, mesh analysis, maximum power theorem, nodal analysis. (Ch. 7-8)
* Unit 3 - Electromagnetism, measuring instruments, basic AC theory, oscilloscopes. (Ch. 9-12)
* Unit 4 - Inductance, inductive reactance, RL circuits, transformers. (Ch. 13-16)
* Unit 5 - Capacitance, capacitive reactance, RC circuits (Ch. 17-19)
* Unit 6 - RLC Circuits, resonance. (Ch. 20-21)

**ELTR 130 – Digital Logic Systems**

**Course Overview**

* Unit 1 – Foundational concepts and number systems (Ch. 1-2)
* Unit 2 – Basic logic functions and logic gates (Ch. 3)
* Unit 3 – Boolean Algebra (Ch. 4)
* Unit 4 – Combinational logic, functions and analysis (Ch. 5-6)
* Unit 5 – Specialized logic ICs: Latches, timers, flip-flops, registers and counters (Ch 7-9)

**ELTR 150 – Solid State Semiconductor Devices**

**Course Overview**

* Unit 1 – Semiconductors & Diodes (Ch. 1-3)
* Unit 2 – Bipolar Junction Transistors (BJTs) (Ch. 4)
* Unit 3 – BJT Amplifiers (Ch. 6-7)
* Unit 4 – Field-Effect Transistors (FETs), FET Amplifiers, Frequency Response (Ch. 8-10)
* Unit 5 – Thyristors (Ch. 11)
* Unit 6 – Operational Amplifiers (Op-Amps), and Op-Amp circuits (Ch. 12-13)
* Unit 7 – Active Filters, Oscillators and Voltage Regulators (Ch. 15-17)

**ELTR 160 – Project Management**

**Course Overview**

**Course topics will include:**

* Project Management concepts
* Basic definition and elements of a project.
* Team members and stakeholders
* Ethical considerations for projects
* PMI Methodology
* Agile Methodology
* Scrum Methodology
* Project documents
* Legal and professional accountability

**ELTR 170 – Electronic System Integration**

**Course Overview**

**Course topics will include:**

* Introduction to Digital Home Technology Integration
* Basic Integration Methods
* Low-Voltage Wiring
* High-Voltage Wiring
* Audio and Video Systems
* Basic Telecommunications Integration
* Home Lighting Control
* Home Environmental Control

**ELTR 180 – Networks and Data Communications**

**Course Overview**

**Course topics will include:**

* Basic definition of a network, brief history, and common uses
* OSI & TCP/IP network models
* Application Layer
* Transport Layer
* Internet Layer
* Network infrastructure layer
* Servers & clients
* Network devices (Modems, routers, switches, cables, wireless access points)

**ELTR 190 – Electronics Capstone Project**

**Course Overview**

This project is self-directed. Your instructor will be available to you as a resource but will not necessarily provide any overt or unprompted direction on how to proceed. Each student is responsible for the management of time, scope, quality, and resources for their project.