Electrical Engineering Tech (ELET) Courses

**ELET 1121 DC/AC Circuits Laboratory: 1 semester hour.**
The Applications of Ohm's Law, Kirchhoff's Law, and related theories to the principle of DC and magnetism in conductors and insulators. Prerequisite: credit for or concurrent enrollment in AC circuits, impedance and phasor experiments. Prerequisites: MATH 1113 or MATH 1115. Co-requisite: ELET 1123.

**ELET 1123 DC/AC Circuits: 3 semester hours.**
Basic principles of electricity, magnetism, conductors, insulators, electric theory, Ohm's Law, Kirchhoff's Laws, characteristics. Study of DC and AC circuits, series and parallel DC circuits, and basic instruments used in electronics. Prerequisites: MATH 1115. Co-requisite: ELET 1121.

**ELET 2221 Basic Electronics I Laboratory: 1 semester hour.**
The implementation of semiconductors in electronic circuits and the analysis of basic amplifiers. Prerequisites: (MATH 1113 or MATH 1115) and ELET 1121 and ELET 1123 and ELET 2223 (may be taken concurrently).

**ELET 2223 Basic Electronics I: 3 semester hours.**
Principles of elementary electronics circuit design and analysis. Solid state diodes, bipolar and MOSFET transistors, biasing techniques DC and AC load lines. Analysis of basic amplifiers. Prerequisites: (MATH 1113 or MATH 1115) and ELET 1121 and ELET 1123 and ELET 2221 (may be taken concurrently).

**ELET 2341 Circuits Analysis Laboratory: 1 semester hour.**
Laboratory experiments in circuit analysis, controlled sources, transient and sinusoidal solutions. Prerequisites: ELET 1121 and ELET 1123 and MATH 1124. Co-requisite: ELET 2343.

**ELET 2343 Circuit Analysis: 3 semester hours.**

**ELET 3003 Antennas and Transmission Systems: 3 semester hours.**
Topics that will be covered are VSWR, application of Smith charts, characteristic of antennas, characteristic of transmission lines, fiber optics used in data transmission, characteristic impedance of transmission lines, antenna gain calculations, antenna patterns, antenna grounding, microwave antenna considerations, and field strength measurement. Prerequisites: MATH 2024 and ELET 2221 and ELET 2223.

**ELET 3151 Electronics II Laboratory: 1 semester hour.**
Implementation and measures on field effect transistors as amplifiers, filters, oscillators and voltage regulators. Prerequisites: ELET 2221 and ELET 2223 and PHYS 2123 and ELET 3153 (may be taken concurrently).

**ELET 3153 Electronics II: 3 semester hours.**
Theory, operation and applications of different types of field effect transistors. Active filters, oscillators, and transient solutions, regulators. Prerequisites: ELET 2221 and ELET 2223 and PHYS 2123 and ELET 3151 (may be taken concurrently).

**ELET 3521 instrumentation, Robotics and Controls Lab: 1 semester hour.**
The theory and applications of electrical application of electronic measuring instruments and input/output transducers. Topics include analog and digital instruments and transducers. Theory and applications of robotic devices and control systems. Prerequisites: ELET 2221 and ELET 2223 and PHYS 2123 and ELET 3523 (may be taken concurrently).

**ELET 3523 Instrumentation, Robotics and Controls: 3 semester hours.**
The theory and applications of electrical application of electronic measuring instruments and input/output transducers. Topics include analog and digital instruments and transducers. Theory and applications of robotic devices and control systems. Prerequisites: ELET 2221 and ELET 2223 and PHYS 2123 and ELET 3521 (may be taken concurrently).

**ELET 3911 Mixed Signals I Lab: 1 semester hour.**
Familiarization of mixed signal test equipment and software. Remote controlled equipment using Lab VIEW. Testing of analog and mixed signal devices such as diodes, transistors, op-amps, and comparators. Prerequisites: ELET 2221 and ELET 2223 and ELET 3913 (may be taken concurrently).

**ELET 3913 Mixed Signals I: 3 semester hours.**
Overview of mixed signal testing. Test specification process, tester hardware, DC and parametric measurements, measurement accuracy, and sampling theory. Prerequisites: ELET 2221 and ELET 2223 and ELET 3911 (may be taken concurrently).
ELET 4082 Senior Project I: 2 semester hours.
A two-semester sequence for individual projects supervised by a faculty member of the department. The portions of the first semester course (4082) are devoted to group discussion of professional aspects of engineering ethics, research protocols, and patent considerations. A written proposal describing the project is required. Oral presentation throughout the semester on the research project using a conference style format.

ELET 4513 Advanced Integrated Circuits: 3 semester hours.
Fabrication of LSI and VSLI devices. Design considerations of PROM, EPROM, EEPROM devices and LIFO, FIFO memories. Students will be required to write computer programs that will perform typical dynamic testing of integrated circuits.
Prerequisites: ELET 2221 and ELET 2223.

ELET 4621 Mixed Signals II Lab: 1 semester hour.
Testing of ADC and DAC. Gain and offset measurements, DC and linearity testing, FFT and its effect of aliasing. ATE projects.
Prerequisites: ELET 3911 and ELET 3913.
Co-requisite: ELET 4623.

ELET 4623 Mixed Signals II: 3 semester hours.
Sampling theory, DSP based mixed signal testing, analog channel measurements, DAC/ADC testing, focused calibrations, DIB design, data analysis and test economics.
Prerequisites: ELET 3911 and ELET 3913.
Co-requisite: ELET 4621.

ELET 4993 Independent Study: 1-3 semester hour.
Reading, research, and/or laboratory work on selected topics in Electrical Engineering Technology.