

Electronics (ELT)

ELT 100 DC/AC Fundamentals

8 Hours

Prerequisites: None
12 hours weekly (4-8)

DC/AC fundamentals will be approached by analyzing the basic series, parallel, and series-parallel circuits. The analysis of AC will be continued with RC, RL, RCL, filters, integrators, and differentiators. Circuit analysis theorems such as Thevenin's and Norton's superposition will be reinforced by appropriate lab experiments.

ELT 100S DC/AC Supplemental Instruction

2 Hours

Prerequisites: Concurrent enrollment in ELT 102 or ELT 111
2 hours weekly (2-0)

This course is designed to provide both group and individual supplemental instruction. The purpose is to provide additional opportunity for student success in the Electronics program.

This is a developmental course which is used to calculate GPA at John A. Logan College, but does not transfer.

ELT 102 Basic Electricity and Wiring

4 Hours

Prerequisites: None
6 hours weekly (2-4)

This course is designed to give students a basic understanding of industrial electricity and power systems to include industrial control circuits.

ELT 103 Applied DC/AC Circuits

4 Hours

Prerequisites: ELT 102
6 hours weekly (2-4)

This course is designed to introduce the student to applied DC/AC circuits. DC topics will include the study of Superposition Theorem, filters, Voltage dividers. AC circuit analysis will include sinusoidal sources, RMS calculations, resonant circuits, capacitive and inductive time constants, series and parallel resonance, and transformers will be covered. Students will use the theory learned in the classroom to design and construct circuits in the laboratory, computer simulation software will also be

used. Test equipment will be used to take measurements and to perform basic trouble.

ELT 110 Solid State Circuits

8 Hours

Prerequisites: ELT 100 or consent of instructor
12 hours weekly (4-8)

This course will introduce students to the use of semi-conductor devices and their properties. Diodes, transistors, J-FETS, and operational amplifiers will be analyzed for DC properties and as amplifiers.

ELT 111 Digital Electronics

6 Hours

Prerequisites: None
8 hours weekly (4-4)

This course will introduce students to basic digital technology. Number systems and basic and complex gate systems will be covered. Digital systems will be analyzed using techniques of Boolean algebra and Karnaugh mapping.

ELT 115 Introduction to Networking I

3 Hours

Prerequisites: None
4 hours weekly (2-2)

This course will familiarize students with a variety of networking technologies. Students will develop fundamental concepts covering hardware and software for networking in a P. C. environment.

ELT 116 Networking II

3 Hours

Prerequisites: ELT 115
4 hours weekly (2-2)

This course will introduce the students to configuring switches, routers, IGRP, access list, and IPX. Students will develop hands-on experience with configuring network components, network cabling, and network plan.

ELT 150 Applied Solid State Electronics

4 Hours

Prerequisites: ELT 102

6 hours weekly (2-4)

This course is designed to introduce the student to solid state devices, controls, and their applications. Basic theory of operation and troubleshooting practices will be introduced using meters and the oscilloscopes. Some of the devices covered will include diodes, transistor amplifiers, logic circuits, thyristors, and timers.

ELT 151 Applied Solid State Circuits

4 Hours

Prerequisites: ELT 150

6 hours weekly (2-4)

This course is designed to introduce the student to applied solid-state circuits. Topics include the study of power supplies, transistor, transistor amplifier and JFET transistor characteristics and circuits. Students will use the theory learned in the classroom to design and construct in the laboratory, computer simulation software will also be used. Test equipment will be used to take measurements and to perform basic troubleshooting.

ELT 200 Introduction to Microprocessors

5 Hours

Prerequisites: ELT 102, ELT 111

7 hours weekly (3-4)

The instruction, demonstration, and practice of beginning machine language programming of the Motorola 6806 microprocessor to be followed by an introduction to basic interfacing techniques.

ELT 210 A+ Preparation Essentials

3 Hours

Prerequisites: None

4 hours weekly (2-2)

CompTIA A+ Essentials validates knowledge of basic computer hardware and software systems, covering skills such as installation, building, upgrading, repairing, configuring, troubleshooting, and preventive maintenance, along with elements of security and soft skills. The Essentials Exam validates the basic skills needed by any entry-level service technician regardless of job environment.

ELT 214 A+ Preparation IT Technician

3 Hours

Prerequisites: None

4 hours weekly (2-2)

The CompTIA A+ Technician (220-602) exam is targeted for individuals who intend to work in a mobile or corporate technical environment with a high level of face-to-face client interaction. The CompTIA IT Technician (220-602) is for the candidate who has already passed the CompTIA A+ Essentials examination. Candidates who pass both the CompTIA A+ Essential and exam 220-602 will be CompTIA A+ certified with the IT Technician designation.

ELT 218 Introduction to Network Technologies

3 Hours

Prerequisites: None

4 hours weekly (2-2)

This course is designed to allow students to obtain the skills necessary to work as an entry level network technician. The course is vendor neutral and allows the student to gain experience in network installation and administration. The successful student will be prepared to take the CompTIA Net + exam.

ELT 220 Linear Integrated Circuits

5 Hours

Prerequisites: ELT 151

7 hours weekly (3-4)

This course will introduce the student to applications of various devices covered in digital and solid states, such as switching and sensing devices. Various industrial power systems and equipment, such as load centers and motor and control circuits, will be covered.

ELT 224 Power Distribution and Motors

3 Hours

Prerequisites: ELT 102 or consent of instructor

4 hours weekly (2-2)

This course will be concerned with power distribution systems and motor loads. Both three phase and single phase will be discussed.

ELT 236 Introduction to Fiber Optics

3 Hours

Prerequisites: ELT 102

4 hours weekly (2-2)

This course will give students a basic understanding of fiber optic electronics. It will explore the basic principle of light, light sources, and light carrying links. Fiber optic communications systems will be discussed, including optic receivers, optic transmitters, and optic system power losses.

ELT 240 FCC General Class License Preparation

3 Hours

Prerequisites: ELT 103 and ELT 151 or consent of instructor

3 hours weekly (3-0)

This course is designed to prepare the student to take the General Radio Telephone Operator's Exam administered by the FCC. After successful completion of the course, the student will be eligible to sit for the exam at an FCC testing site.

ELT 241 Energy Management

3 Hours

Prerequisites: None

5 hours weekly (1-4)

Students will develop skills to manage and plan green technologies installations. This course focuses on setting up and determines what equipment is best and most cost effective for a particular job. Various types of HVAC equipment and efficiencies and comparison of each will be done.

ELT 243 Alternative Energy Systems

3 Hours

Prerequisites: None

5 hours weekly (1-4)

Students will develop knowledge in the solar energy technologies field. They will learn the various types of solar systems and how to set up a solar energy system. Also general maintenance and cost calculations will be covered.