ELET - Electronics Technology Courses

ELET B1A Basic Electronics (DC)
3 units
Description: An introduction to basic electricity and electronics, DC circuit types and circuit analysis, basic electronic components and electronic schematic diagram symbols, interpreting schematic diagrams, soldering skills, basic electronic test equipment use and measurement methods, and electromagnetic relays and relay circuits.
Hours: 36 lecture, 54 lab
Transferable: CSU and private colleges.

ELET B1B Electronics and Electric Technology
3 units
Prerequisite: Successful completion of ELET B1 or ELET B1A with a grade of C or better.
Description: This course is the companion to ELET B1A, Basic Electronics (DC). Alternating Current (AC) theory, power generation and transmission, AC circuits, and reactive components are introduced in this course. Advanced coverage of electronic components, as well as the common analog circuits used in electronic devices, including: power supplies, amplifiers, power-handling circuits, filters, sensing and measurement circuits, and oscillators. An introduction to digital electronics, devices, and digital signal processing is also covered. Because it covers the theory behind many of the common electronic systems, this course is recommended prior to taking advanced courses in the Electronics Technology program
Hours: 36 lecture, 54 lab
Transferable: CSU and private colleges.

ELET B3 Programmable Logic Controllers
3 units
Description: The function and application of programmable logic controllers. Students will become familiar with the programming and wiring of Allen Bradley SLC-500 series controllers with RSLogix software. Topics covered include bit-level input and output instructions, timers, counters, latches, documentation, and troubleshooting.
Hours: 36 lecture, 54 lab
Transferable: CSU and private colleges.

ELET B4 Computer Integrated Manufacturing
3 units
Prerequisites: Successful completion of ELET B3 or equivalent with a grade of C or better.
Description: Introduction to industrial automation technologies and the procedures utilized when troubleshooting automated control systems. Topics include programmable logic controllers (PLC), machine control, industrial robots, and material handling systems. Students will be exposed to cutting edge systems utilizing Industry 4.0 Standards.
Note: Not open to students who have completed MFGT B4 or MFGT B50.
Hours: 36 lecture, 54 lab
Transferable: CSU and private colleges.

ELET B6 Analog and Digital Electronics
3 units
Prerequisites: Successful completion of ELET B1 or equivalent with a grade of C or better.
Description: Applications of analog and digital electronic circuits and systems. Content includes: semiconductor components, analog circuits (power supplies, amplifiers, and oscillators), digital electronic circuits (logic gates, sequential logic circuits), digital signal processing (A/D and D/A conversion).
Note: Not open to students who have taken ELET B9 and ELET B12.
Hours: 36 lecture, 54 lab
Transferable: CSU and private colleges.

ELET B48WE Occupational Work Experience Education/ Internship
1-8 units
Prerequisites: Declared major or occupational goal and evaluation of student's qualifications and objectives.
Description: College credit for Electronic Technology related learning experiences obtained on the job in accordance with a training plan developed cooperatively between the employer, college, and student. Occupational work experience credit may accrue at the rate of 1 to 8 units per semester for a total of sixteen units, and students must work 75 hours per semester unit at paid work experience; 60 hours per semester unit volunteer work experience per unit. Repetition allowed per Title 5 55253.
Hours: Non-paid 60 hours for each 1 unit (60-480). Paid 75 hours for each 1 unit (75-600).
Transferable: Not transferable

ELET B55A Electric Motors - Controls
3 units
Prerequisites: Successful completion of ELET B1 or ELET B1A with a grade of C or better.
Description: A basic study of electric motors, control systems, and electrical power, including: safety and personal protective equipment, NFPA 70e code, electrical drawings and diagrams, motor control devices and circuits, electric motor types, three phase power and transformers, and power factor correction. Lab activities include simulation and wiring of control circuits, DC and AC motor types, motor performance characteristics, transformer configurations, and other industrial motion applications. Not open to students with credit in ELET B55.
Hours: 36 lecture, 54 lab
Transferable: Not transferable. Degree applicable.

ELET B56 Instrumentation and Process Control
3 units
Prerequisites: Successful completion of ELET B1 or ELET B1A with a grade of C or better.
Description: Basic principles of process instrumentation and control. Topics include: Properties of and methods to perform direct or inferred measurement to manage pressure, temperature, level and flow. Operation of common final control elements. Identifying and configuring basic open and closed loop control algorithms with their associated communication methods. System for Identification and labeling of instrumentation and control elements.
Hours: 36 lecture, 54 lab
Transferable: Not transferable. Degree applicable.

ELET B58 Advanced Programmable Logic Controllers
3 units
Prerequisites: Successful completion of ELET B5 with a grade of 'C'

or better.
Description: The function and application of programmable logic controllers. Students will become familiar with the programming of Allen Bradley Control Logix series controllers with RSLogix 5000 software, providing all of the basics of using the Rockwell Automations Control Logix platform of PLCs. It will allow students to be involved with either maintenance, or engineering of control systems and machinery with the latest technology from Rockwell Automation. Students will have both theory and lab time, learning how to put a system together, understanding the memory and data structure of the PLC, and writing simple programs. Documenting the written program utilizing the features of the programming software as well as troubleshooting techniques will also be emphasized throughout the course.
Hours: 36 lecture, 54 lab
Transferable: Not transferable. Degree applicable.

ELET B61 Telecommunications
3 units
Prerequisites: Successful completion of ELET B1 or ELET B1A with a grade of C or better.
Description: Elements of residential and commercial phone systems, electronic communications "basics," communication protocols, copper and fiber-optic transmission line characteristics, fiber-optic cabling and systems, commercial premise structured cabling systems, and other non-radio-based communication topics will be covered in this course.
Hours: 36 lecture, 54 lab
Transferable: Not transferable. Degree applicable.

ELET B62 Radio Communications
3 units
Prerequisites: Successful completion of ELET B1 or ELET B1A with a grade of C or better.
Description: Introduction to the basic circuits and systems used for RF communications systems, including microwave and satellite communications, two-way radio systems, AM, FM, NBFM, and SSB modulation, WiFi, antenna systems, and transmission lines.
Hours: 36 lecture, 54 lab
Transferable: Not transferable. Degree applicable.

ELET B63 Electronic Systems Installation
3 units
Prerequisites: Successful completion of ELET B1 or ELET B1A with a grade of C or better.
Description: Electronic System Installation covers the design, installation, integration, and certification of residential low-voltage wiring systems, such as: telephone, data communications, video systems, cable and satellite systems, audio systems, home automation, security systems, and other integrated home technologies. Hands-on installation, testing, and certification of these systems will occur during the lab portion of this course. Students will be prepared for residential low-voltage industry certifications
Hours: 54 lecture, 54 lab
Transferable: Not transferable. Degree applicable.

ELET B70 Mechanical Systems
3 units
Description: Introduction to machinery and machining processes, essential elements of mechanical systems, mechanical drives (gears, belts and pulleys, clutches), mechanical hardware, bushings, bearings, lubrication systems, basic properties of materials, hydraulics and pneumatics, preventive maintenance, basic hand and power tools, and basic precision dimensional measurement.
Hours: 36 lecture, 54 lab
Transferable: Not transferable. Degree applicable.