

ELECTRONICS (ELCT)

ELCT 111, ELECTRICAL CIRCUITS I 3 (5)

This course provides a detailed study of dc electrical circuits and related bilateral components. This course also contains a laboratory section that emphasizes the practical aspects of circuit construction and electrical measurement devices. Laboratory required. (A special fee will be assessed.) (TAG, CTAG, MTAG)

General Education: IN1, IN5

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 058 or satisfactory placement assessment score in mathematics

Typically Offered: Summer, Fall and Spring Semesters

ELCT 112, ELECTRICAL CIRCUITS II 4 (6)

The course is a continuation of Electrical Circuits I, with the emphasis on analog ac electrical networks. The ac circuit analysis techniques that are studied include: Superposition and Thevenin's & Norton equivalent circuits. The concepts of RC, RL, and RLC reactive circuits; resonance, passive filters, transformers and three-phase power systems are also covered. Laboratory required. (A special fee will be assessed.) (TAG, MTAG)

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 111 and MTHM 121 or concurrently

Typically Offered: Fall and Spring Semesters

ELCT 115, FABRICATION PROCESS FOR ELECTRONICS 2 (4)

This course is designed to introduce electronic technicians to the skills and techniques used in the design process, fabrication and packaging of electronic equipment. Topics covered include: safety procedures, simple hand tool usage, parts recognition, printed circuit board layout and fabrication, types of wiring and connectors, soldering and de-soldering of components and documentation used in the electronic industry. Laboratory required. (A special fee will be assessed.)

General Education: IN1

Typically Offered: Fall and Spring Semesters

ELCT 121, DIGITAL ELECTRONICS 4 (6)

The course serves as an introduction to basic digital electronic concepts. Topics included are number systems, logic gates, Boolean algebra, combinational logic, flip flops, counters, registers, memories, and an introduction to microprocessors. Laboratory required. (A special fee will be assessed.) (TAG, CTAG, MTAG)

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 111 or ELCT 123; Concurrent: MTHM 121

Typically Offered: Summer, Fall and Spring Semesters

ELCT 123, INTRODUCTION TO DATA ACQUISITION INSTRUMENTATION 2 (4)

This course provides students with practical, hands-on experience in the application of electronic data acquisition instrumentation including digital multi-meters, digital oscilloscopes, function generators, and various data acquisition equipment. It provides students with an introduction to voltage, current, resistance, and power. The course contains a laboratory section that emphasizes the practical aspects of electrical measurement devices. Laboratory required (A special fee will be assessed.)

General Education: IN1, IN5

Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 058 or satisfactory placement assessment score in mathematics or concurrent enrollment in MTHM 058

Typically Offered: Fall Semester

ELCT 124, INDUSTRIAL ELECTRICITY 3 (5)

An introduction to direct current and alternate Current electrical circuits as used within an industrial setting, focusing on the installation, maintenance, and industrial application of electrical equipment and controls.

General Education: IN1

Course Entry Requirement(s): Course placement policy: MTHM 058 concurrently

Typically Offered: Fall Semester

ELCT 211, ELECTRICAL POWER AND DEVICES 4 (6)

This course is an introduction to electrical power and motor control devices, applications and related circuitry. Topics include AC and DC motors with industrial control applications as well as the installation and programming of variable frequency drives. The laboratory includes hands-on construction and trouble shooting of practical motor control circuits. Laboratory required. (A special fee will be assessed.)

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 111

Typically Offered: Fall and Spring Semesters

ELCT 221, MICROCONTROLLERS 4 (6)

Topics in this course include microprocessor/microcontroller architecture, instruction sets, software development, interrupt handling, interfacing techniques and hardware used in control applications designed with microprocessor/microcontrollers. Laboratory required. (A special fee will be assessed.) (TAG, MTAG)

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 121

Typically Offered: Fall Semester

ELCT 222, ADVANCE MICROCONTROLLER APPLICATION 4 (6)

Topics in this course include a short review of microcontroller architecture and instruction sets. Software development using C, a high level language is applied to interrupt handling, interfacing techniques and driver development for hardware used in microcomputer applications. Laboratory required. (A special fee will be assessed.)

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 221

Typically Offered: Not offered this year

ELCT 223, ELECTRICAL BLUEPRINT READING 2 (2)

This course is an introduction to the skills required to read and understand electrical blueprints and schematic diagrams. The reading of blueprints is emphasized rather than the drawing of blueprints. (MTAG)

General Education: IN1

Course Entry Requirement(s): None

Typically Offered: Spring Semester

ELCT 224, INDUSTRIAL ELECTRONICS 4 (6)

This course is an introduction to the theory, devices, circuits, and systems used to monitor, measure, and control industrial processes. Topics include the performance characteristics and application of DC motors, three phase motors and transformers, auxiliary motor devices, and power factor. Specification and characteristics of power switching devices including, rectifiers, transistors, thyristors, opto-isolators, regulated power supplies and applicable safety standards. Laboratory required. (A special fee will be assessed.)

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 211

Typically Offered: Spring Semester

ELCT 227, NATIONAL ELECTRIC CODE 2 (2)

This course covers a major subset of the knowledge and skills required for a technician working in the field of electrical power distribution, including the National Electrical Code with an emphasis on commercial and industrial applications.

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 111

Typically Offered: Fall and Spring Semesters

ELCT 228, SWITCHGEAR, TRANSFORMERS & CONTROLS 3 (5)

This course covers a major subset of the knowledge and skills required for a technician working in the field of electrical power distribution, including: theory and operation of low and high voltage circuit breakers and switch gear; transformers; transformer connection methods; ladder logic; wiring diagrams, and input and output control devices. The laboratory includes hands-on construction and trouble shooting of practical industrial control circuits. Laboratory required. (A special fee will be assessed.)

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 112

Typically Offered: Fall Semester

ELCT 229, TRANSMISSION AND DISTRIBUTION OF ELECTRICAL POWER 3 (5)

This course covers a major subset of the knowledge and skills required for a technician working in the field of electrical power distribution, including: theory, operation, and analysis of power transmission systems, power distribution systems, and the components used in these systems. The laboratory includes field trips to appropriate electrical installations, as well as problem solving sessions. Laboratory required. (A special fee will be assessed.)

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 112

Typically Offered: Spring Semester

ELCT 233, ELECTRONIC DEVICES I 4 (6)

This course is an introduction to the theory, operation, and practical applications of solid state devices. Topics include diodes, bipolar junction transistors, amplifiers, field effect transistors, frequency response, thyristors, operational amplifiers, oscillators, and voltage regulators. Laboratory required. (A special fee will be assessed.) (TAG, MTAG)

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 111; Concurrent: MTHM 121

Typically Offered: Fall Semester

ELCT 234, ELECTRONIC DEVICES II 4 (6)

This course is a continuation of ELCT 233 Electronic Devices I. Topics include diodes, bipolar junction transistors, amplifiers, field effect transistors, frequency response, thyristors, operational amplifiers, oscillators, and voltage regulators. Laboratory required. (A special fee will be assessed.)

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 233

Typically Offered: Spring Semester

ELCT 241, COMMUNICATIONS ELECTRONICS 4 (6)

The course presents the basic principles, circuits, and building blocks used in electronic communication systems. Topics include: noise, AM & FM modulation, radio receivers, transmitters, wave propagation, transmission lines, antennas, microwave concepts, and satellite communications. Laboratory required. (A special fee will be assessed.)

General Education: IN1

Course Entry Requirement(s): Prerequisite: ELCT 233

Typically Offered: Spring Semester

ELCT 287, WORK-BASED LEARNING I - ELCT 1-3 (1)

This course provides supervised, paid work experience with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating prior or concurrent classroom learning with work experience through career readiness competencies. Students will be able to evaluate career selection and satisfactorily demonstrate work-related competencies.

General Education: IN1, IN2, IN3, IN4

Course Entry Requirement(s): A student must be pursuing a degree seeking program at LCCC; have completed 12 semester hours with a minimum of 6 semester hours in the discipline of placement; have a min GPA of 2.5 in the discipline and a 2.0 overall GPA; and have division approval.

Typically Offered: Offer as required

ELCT 288, WORK-BASED LEARNING II - ELCT 1-3 (1)

Building on experiences from Work Based Learning I, this course provides supervised, paid work experience with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating prior or concurrent classroom learning with work experience through career readiness competencies. Students will be able to evaluate career selection and satisfactorily demonstrate work-related competencies.

General Education: IN1, IN2, IN3, IN4

Course Entry Requirement(s): Prerequisite: ELCT 287

Typically Offered: Offer as required

ELCT 289, WORK-BASED LEARNING III - ELCT 1-3 (1)

Building on experiences from Work Based Learning II, this course provides supervised, paid work experience with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating prior or concurrent classroom learning with work experience through career readiness competencies. Students will be able to evaluate career selection and satisfactorily demonstrate work-related competencies.

General Education: IN1, IN2, IN3, IN4

Course Entry Requirement(s): Prerequisite: ELCT 288

Typically Offered: Offer as required

ELCT 299, INDIVIDUALIZED STUDIES/ELECTRONICS 1-2 (1)

An in-depth study in the area of electronics engineering technology presented by discussions and/or individual research and reading. Topics will vary. Repeatable up to a total of four (4) credit hours. Prerequisites: Second-year standing and divisional approval.

Course Entry Requirement(s): Prerequisite: Second-year standing and division approval

Typically Offered: Offer as required