INDUSTRIAL ELECTRONICS TECHNOLOGY AAS

The Industrial Electronics Technology Program prepares students for work in installation, testing, and maintenance of electrical and electronic systems in industrial, scientific, and commercial facilities. The program also provides specific training in basic computer hardware and software, Programmable Logic Controllers (PLCs), motors and motor control systems, three-phase power distribution, and Human-Machine Interface (HMI) programming. Graduates are prepared to pursue jobs in areas such as manufacturing automation, electrical power distribution, protection systems, and other electrically-related fields.

The program offers both degrees and certificates. The Electronics Engineering Technology (EET) track emphasizes design, testing, and product development in electrical/electronic systems, while the Instrument Mechanic (IM) track emphasizes instrumentation and control systems found in continuous processing industries such as paper production, oil refining, and water treatment.

Potential positions include industrial electrician, instrument technician, power systems maintenance technician, electronic maintenance technician, process control technician, and electrical apprentice. Typical employers are engineering and manufacturing firms and utility companies.

Entrance requirements for students seeking enrollment in the Industrial Electronics program include:

- Students must score a 30 or higher in math on ALEKS and have a 2 or higher score on the Writing Placement Exam, or equivalent college placement exams.
- Enrollment priority for students seeking entrance into the program is on a first-come first-serve basis as determined by the student's faculty advising date.

Successful completers will demonstrate the following:

(1) COMMUNICATION and TEAMWORK – Accurately communicate ideas across a variety of media (oral, written, graphical) to both technical and non-technical audiences; Function effectively as a member of a technical team.

(2) SELF-MANAGEMENT – Arrive on time and prepared; Work diligently until the job is done; Budget resources appropriately to achieve objectives.

(3) SAFE WORK HABITS – Comply with relevant national, state, local, and college safety regulations when designing, prototyping, building, and testing systems.

(4) ANALYSIS and DIAGNOSIS – Select and apply appropriate principles and techniques for both qualitative and quantitative circuit analysis; Devise and execute appropriate tests to evaluate electronic system performance; Identify root causes of electronic system malfunctions.

(5) PROBLEM-SOLVING – Devise and implement solutions for technical problems appropriate to the discipline.

(6) DOCUMENTATION – Interpret and create technical documents (e.g. electronic schematic diagrams, block diagrams, graphs, reports) relevant to the discipline.

(7) INDEPENDENT LEARNING – Select and research information sources to learn new principles, technologies, and/or techniques.

Students may choose either the Instrument Mechanics (IM) track or the Electronic Engineering Technology (EET) track. The first two semesters' worth of technical courses are common to both tracks; part-time enrollment options also exist to give students more options and flexibility in their education.

The EET track emphasizes skills required to be an Electronics Technician in engineering, manufacturing, and telecommunications industries. After the common first-year courses in DC, AC, and Digital circuits (including basic PLC programming), the EET student goes on to study computer programming, advanced analog circuitry, radio-frequency circuits, electric power system control and protection, digital communications, and data acquisition systems. Successful completion of the EET track can open doors into industries like Electronics Manufacturing, Semiconductor Manufacturing, Energy & Utilities, Research and Development, Broadcasting, and Telecommunications. All technical coursework for this track is open-source and available online at: https://www.ibiblio.org/kuphaldt/socratic/model/

The IM track provides the solid technical foundation required to pursue a career as an Instrumentation Mechanic/Technician, or Instrumentation Controls Technician. After the common first-year courses in DC, AC, and Digital circuits (including basic PLC programming), the IM student goes on to study process indication measurements like pressure, level, temperature, flow, and chemical measurement. IM students also study control valves, motor control systems, PLC- and HMI-based control systems, and closed-loop controls. Successful completion of the IM track can open doors into industries like Energy & Utilities, Pulp & Paper, Biotech & Pharmaceutical, Chemical, Food & Beverage, Mining & Minerals, and Electronic Manufacturing.

General Education Requirements

Code	Title	Credits
Written Communication		
ENGL-101	WRITING AND RHETORIC I	3.00

Oral Communication		
Select one of the following:		3.00
COMM-101	FUNDAMENTALS OF ORAL COMMUNICATION	
COMM-203	SMALL GROUP COMMUNICATION	
COMM-204	PUBLIC SPEAKING	
Mathematical Ways of Knowing		
MTHPT-137	MATH FOR TECHNOLOGY	4.00
Social & Behavioral Ways of Knowing		
Select one of the following:		3.00
ANTH-102	CULTURAL ANTHROPOLOGY	
ANTH-120	WORLD PREHISTORY	
ANTH-170	INTRODUCTION TO NATIVE AMERICAN STUDIES	
ECON-201	PRINCIPLES OF MACROECONOMICS	
ECON-202	PRINCIPLES OF MICROECONOMICS	
GEOG-102	INTRODUCTION TO GEOGRAPHY	
HIST-101	WORLD HISTORY I	
HIST-102	WORLD HISTORY II	
HIST-111	UNITED STATES HISTORY I	
HIST-112	UNITED STATES HISTORY II	
HRPT-184	DIVERSITY IN ORGANIZATIONS	
HRPT-185	HUMAN RELATIONS IN ORGANIZATIONS	
POLS-101	AMERICAN NATIONAL GOVERNMENT	
POLS-237	INTERNATIONAL POLITICS	
POLS-285	COMPARATIVE GOVERNMENT	
PSYC-101	INTRODUCTION TO GENERAL PSYCHOLOGY	
PSYC-205	LIFESPAN DEVELOPMENTAL PSYCHOLOGY	
SOC-101	INTRODUCTION TO SOCIOLOGY	
SOC-102	SOCIAL PROBLEMS	
SS-184	DIVERSITY IN ORGANIZATIONS	
SS-185	HUMAN RELATIONS IN ORGANIZATIONS	
Additional General Education Core		**3.00**
*Additional Core Course cannot be used to fulfill a requirement above.		
Select the link below to review LC State's General Education Core courses		
http://catalog.lcsc.edu/general-education (http://catalog.lcsc.edu/general-education/)/		
Total Credits		**16.00**

Program Requirements

Code	Title	Credits
AAS Degree		
Select one of the following:		48.00
Electronic Engineering Technician		
Take all of the following:		
IETTI-101	DC CIRCUIT THEORY	
IETTI-102	DC CIRCUIT PROJECTS	
IETTI-103	DC CIRCUIT EXPERIMENTS	
IETTI-104	AC CIRCUIT THEORY	
IETTI-105	AC CIRCUIT PROJECTS	
IETTI-112	AC CIRCUIT EXPERIMENTS	
IETTI-220	Intermediate Electronics Projects	
IETTI-221	INTERMEDIATE ELECTRONICS EXPERIMENTS	
IETTI-222	INTERMEDIATE ELECTRONICS THEORY	
IETTI-223	ADVANCED ELECTRONICS THEORY	

IETTI-225	ADVANCED ELECTRONICS EXPERIMENTS	
IETTI-236	ADVANCED ELECTRONICS PROJECTS	
Industrial Electronics Technology		
Take all of the following:		
IETTI-101	DC CIRCUIT THEORY	
IETTI-102	DC CIRCUIT PROJECTS	
IETTI-103	DC CIRCUIT EXPERIMENTS	
IETTI-104	AC CIRCUIT THEORY	
IETTI-105	AC CIRCUIT PROJECTS	
IETTI-112	AC CIRCUIT EXPERIMENTS	
Take 24 credits of IETTI 200-level courses.		24.00
Instrument Mechanic		
Take all of the following:		
IETTI-101	DC CIRCUIT THEORY	
IETTI-102	DC CIRCUIT PROJECTS	
IETTI-103	DC CIRCUIT EXPERIMENTS	
IETTI-104	AC CIRCUIT THEORY	
IETTI-105	AC CIRCUIT PROJECTS	
IETTI-112	AC CIRCUIT EXPERIMENTS	
IETTI-270	INDUSTRIAL MEASUREMENT THEORY	
IETTI-271	INDUSTRIAL MEASUREMENT EXPERIMENTS	
IETTI-272	INDUSTRIAL MEASUREMENT PROJECTS	
IETTI-280	INDUSTRIAL CONTROL THEORY	
IETTI-281	INDUSTRIAL CONTROL EXPERIMENTS	
IETTI-282	INDUSTRIAL CONTROL PROJECTS	
Total Credits		**72.00**

Sequential Plan of Study
Industrial Electronics Technology

Course	Title	Credits
First Year		
Fall		
IETTI-101	DC CIRCUIT THEORY	4.00
IETTI-102	DC CIRCUIT PROJECTS	4.00
IETTI-103	DC CIRCUIT EXPERIMENTS	4.00
MTHPT-137	MATH FOR TECHNOLOGY	4.00
	Credits	**16.00**
Spring		
ENGL-101	WRITING AND RHETORIC I	3.00
IETTI-104	AC CIRCUIT THEORY	4.00
IETTI-105	AC CIRCUIT PROJECTS	4.00
IETTI-112	AC CIRCUIT EXPERIMENTS	4.00
CORE	Oral Communication	3.00
	Credits	**18.00**
Second Year		
Fall		
CORE	Social & Behavioral Ways of Knowing	3.00
Elective	Select 200 Level IETTI Course	4.00
Elective	Select 200 Level IETTI Course	4.00
Elective	Select 200 Level IETTI Course	4.00
	Credits	**15.00**

Spring		
CORE	Additional General Elective Course	3.00
Elective	Select 200 Level IETTI Course	4.00
Elective	Select 200 Level IETTI Course	4.00
Elective	Select 200 Level IETTI Course	4.00
	Credits	**15.00**
	Total Credits	**64.00**

Electronic Engineering Technician

Course	Title	Credits
First Year		
Fall		
ENGL-101	WRITING AND RHETORIC I	3.00
IETTI-101	DC CIRCUIT THEORY	4.00
IETTI-102	DC CIRCUIT PROJECTS	4.00
IETTI-103	DC CIRCUIT EXPERIMENTS	4.00
MTHPT-137	MATH FOR TECHNOLOGY	4.00
	Credits	**19.00**
Spring		
IETTI-104	AC CIRCUIT THEORY	4.00
IETTI-105	AC CIRCUIT PROJECTS	4.00
IETTI-112	AC CIRCUIT EXPERIMENTS	4.00
CORE	Oral Communication	3.00
	Credits	**15.00**
Second Year		
Fall		
CORE	Social & Behavioral Ways of Knowing	3.00
IETTI-220	INTERMEDIATE ELECTRONICS PROJECTS	4.00
IETTI-221	INTERMEDIATE ELECTRONICS EXPERIMENTS	4.00
IETTI-222	INTERMEDIATE ELECTRONICS THEORY	4.00
	Credits	**15.00**
Spring		
CORE	Additional General Elective Course	3.00
IETTI-223	ADVANCED ELECTRONICS THEORY	4.00
IETTI-225	ADVANCED ELECTRONICS EXPERIMENTS	4.00
IETTI-236	ADVANCED ELECTRONICS PROJECTS	4.00
	Credits	**15.00**
	Total Credits	**64.00**

Instrument Mechanic

Course	Title	Credits
First Year		
Fall		
IETTI-101	DC CIRCUIT THEORY	4.00
IETTI-102	DC CIRCUIT PROJECTS	4.00
IETTI-103	DC CIRCUIT EXPERIMENTS	4.00
MTHPT-137	MATH FOR TECHNOLOGY	4.00
	Credits	**16.00**
Spring		
CORE	Oral Communication	3.00
ENGL-101	WRITING AND RHETORIC I	3.00

IETTI-104	AC CIRCUIT THEORY	4.00
IETTI-105	AC CIRCUIT PROJECTS	4.00
IETTI-112	AC CIRCUIT EXPERIMENTS	4.00
	Credits	**18.00**
Second Year		
Fall		
CORE	Social & Behavioral Ways of Knowing	3.00
IETTI-270	INDUSTRIAL MEASUREMENT THEORY	4.00
IETTI-271	INDUSTRIAL MEASUREMENT EXPERIMENTS	4.00
IETTI-272	INDUSTRIAL MEASUREMENT PROJECTS	4.00
	Credits	**15.00**
Spring		
CORE	Additional General Education Course	3.00
IETTI-280	INDUSTRIAL CONTROL THEORY	4.00
IETTI-281	INDUSTRIAL CONTROL EXPERIMENTS	4.00
IETTI-282	INDUSTRIAL CONTROL PROJECTS	4.00
	Credits	**15.00**
	Total Credits	**64.00**

View on YouTube (https://www.youtube.com/watch/?v=t8l1dDuPgnE)

Graduates from Industrial Electronics Technology programs go on to obtain careers in a variety of fields:

- Industrial-Electrical Technician
- Instrument Technician
- Power Systems Maintenance Technician
- Electronic Maintenance Technician
- Process Control Technician
- Electrical Apprentice
- Research and Development
- Electronics Equipment Analyst
- Programming Technician
- Manufacturing Technician