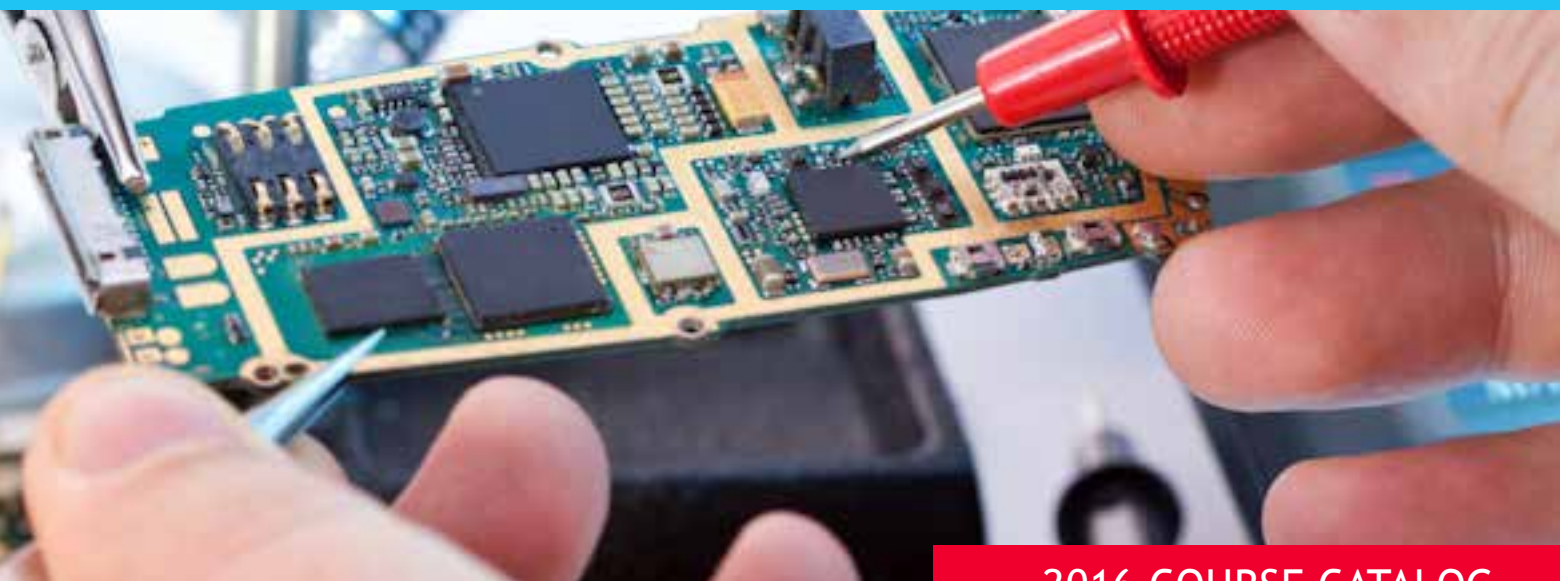




**2 New
Courses**

Cleveland Institute of Electronics



2016 COURSE CATALOG

www.cie-wc.edu



Distance Learning Electronics and Computer IT Training

A Letter from the President

Dear Prospective Student:

I'd like to take this opportunity to thank you for your interest in the Cleveland Institute of Electronics (CIE) and to congratulate you on taking a big step toward furthering your education and your career.

The world of electronics and computer technology is both fast-changing and extraordinarily challenging.

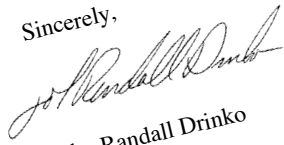
Whether you're interested in computer technology, wireless communications, digital electronics, A+ certification, computer programming or electronics, Cleveland Institute of Electronics has a distance learning career program to put you ahead in these high-tech fields.

Our faculty and staff are among the most dedicated, caring and knowledgeable individuals in education.

And our graduates leave CIE as the skilled technicians and engineering technologists best equipped to tackle the complexities of today's industry, whether it's in computer technology, broadcast engineering, high-tech manufacturing, computer programming, robotics, or microprocessor technology.

Let us welcome you into this challenging and rewarding new technological frontier. We'll be with you every step of the way.

Sincerely,



John Randall Drinko
President



CIE Headquarters, Cleveland, Ohio.

A History of Our Growth

1934

Carl Smith establishes CIE as the Smith Practical Radio Institute.

1956

CIE patents the Auto-Programmed® method of learning.

1969

CIE develops the first customized laboratory training equipment for home use.

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Approvals

1. Approved by the Ohio State Board of Career Colleges and Schools to offer postsecondary programs of electronics, computer technology and electronics engineering technology. Registration Certificate 70-11-0002H.

Contact Information

Cleveland Institute of Electronics
1776 E. 17th Street
Cleveland, OH 44114

Call us toll-free **(800) 243-6446** or email us at instruct@cie-wc.edu.

Every effort was made to assure the accuracy of this catalog. The Cleveland Institute of Electronics reserves the right to make changes in curriculum, faculty and policies. Please consult the appropriate department for current information.

1981

The Institute of Electrical and Electronics Engineers votes to allow CIE students to join IEEE as student members.

2011

Live Video Lectures

2014

Automation and Robotics Course

Computer Security Specialist Course

2016

New IT Security Course

New Game Development and Mobile Apps Course

Distance Education

Our graduates agree: distance education offers tremendous advantages over traditional on-campus training.

As a CIE student, you can study on your own time, so you can keep your present job and "earn while you learn". CIE lets you tailor your education to your career goals, so you can focus on just the training you need.



**Have questions, or need assistance?
Call CIE Toll-FREE 1-800-243-6446 (CIE-OHIO)
www.cie-wc.edu**

Basic Core Lessons

You will find that most of CIE's courses are designed around a core of lessons that cover basic theories applicable to many areas of electronics and computer technology.

Course 14B contains the same initial 93 lessons that together comprise Course 1B. This is the course that teaches basic electronics, and goes on to increasingly more advanced lessons.

Intermediate & Advanced Level Courses

For those individuals who already possess some electronics knowledge, CIE has designed several specific courses.

Our intermediate level courses include courses 1A, 2, 4, & 5.

You can pick up where your previous electronics training left off, or update your present skills. These non-laboratory courses can be the answer to upgrading your skills to the desired level.

A Programmed Approach to Learning

CIE has a study method that's so good, so innovative, it's patented.

It's called the AUTO-PROGRAMMED® teaching method, and it did nothing short of setting a new standard for education through distance learning.

AUTO-PROGRAMMED® lessons allow you to learn electronics one step at a time, and you determine the size of the step.

Practical, Hands-On Training

As a CIE student, you can train on your own laboratory equipment, which assures you that you can practice whenever you like, and repeat experiments as often as you need, to master them.

On-Line Exams

Take your exams online on our e-grade web site anytime you want - day or night! Your graded exams will be processed and e-mailed back to you within 24 hours.

Textbook Buyback Program

Some CIE lesson modules include textbooks that qualify for our Textbook Buyback Program.

The program enables you to sell your textbooks back to CIE for tuition credit once you are finished with them.

Personalized Training From A Dedicated Faculty

CIE's dedicated staff of instructors do more than just grade your exams; they help guide you, step-by-step, through your studies and hands-on training. They personally review each written report. They'll encourage you when you're doing well, and give you support when you need it. Most importantly they'll see that every question you have receives careful consideration by one or more members of the staff. You can be sure the response, whether it's a simple explanation or an in-depth theoretical discussion, will be prompt, courteous, and thorough.

Instructor Chat Room

The CIE faculty keeps regular office hours where you can talk to them live via the CIE chat room. Simply log on and ask an Instructor a question right from your computer!

Video Library

Watch a CIE instructor discuss a variety of lessons and hands-on labs in our video library. Log on any time and learn from the comfort of your own home!

Resources

There is no formal campus or classrooms at CIE, but you will find all the educational resources of a traditional residential education center here.

We provide the opportunity to purchase optional lab equipment and an array of school items... we publish our own school paper on the internet ... we make membership available to an honor society and professional associations... interactive instructor chat room... and lesson grading is available through e-grade.



Employee Education Programs

Group training is available through the CIE Employee Education Program. This program exists to serve employers who have the need to train three or more employees at the same time.

A company can receive substantial tuition discounts for participating in this program and using CIE either as an extension of its own training program or as a substitute for one.

CIE group training is acknowledged and applauded by many companies. They have found CIE's training programs to be a cost-effective alternative or supplement to national company training programs.

Specialized Training

If you need to modify course work in some fashion to accommodate the specific needs of a company training program, we can do that. Consultation with a CIE Admissions Advisor is necessary to work out the details.

Progress Reports

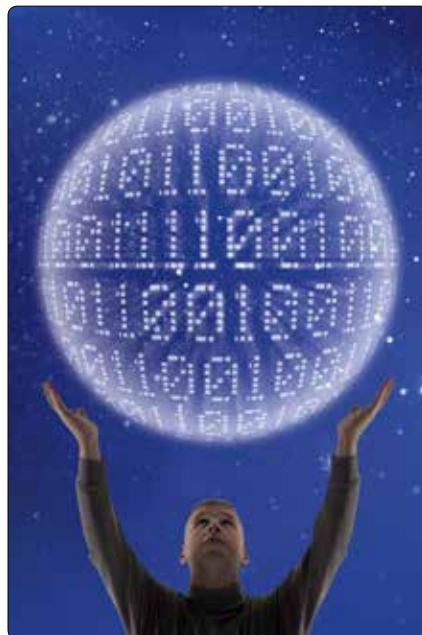
Periodic progress reports on each employee enrolled under the Employee Education Program is provided to the employer during training.

A proctored final examination is given – at the company's option – to assure successful mastery of the subject material.

Getting Started

Companies interested in getting more information on CIE's Employee Education Programs should contact CIE's Industrial Sales Manager at

**1-800-243-6446
(CIE-OHIO).**



Automation and Robotics with Lab

Course Description

Learn how to design, build and test a robot while incorporating automation concepts.

This course blends multiple disciplines including Electronics, Robotic Controls, Automated Systems and PLCs to give students a well rounded education in Robotic Technology and Automation.

With its unique collection of hands-on labs, lessons, exercises, simulations and interactive media this program will prepare students for a wide range of careers in the rapidly growing Robotics Automation field.

Best of all, students will actually build, troubleshoot and operate a robot!

After you complete this course you'll be able to master automation technologies used in today's industrial environment.

Course 5B includes 48 lessons with instructor support that culminates in a Certificate from Cleveland Institute of Electronics.

- Completion time allowed is 12 months
- Clock Hours: 480

Learn how to:

- Troubleshoot robotic systems
- Program microprocessors
- Align, fit and assemble robot component parts
- Maintain, calibrate, tune and program industrial automated systems
- Test robotic assemblies
- Develop and test robotic path motions

Understand why:

- Programmable controllers control automation
- Electronics, circuits and sensors effect automation controls
- Hydraulics and pneumatics move industrial robots

LESSONS

DC Circuit Theory

- Current and Voltage
- Controlling Current and Voltage
- The Three Basics of Electric Circuits: Voltage, Current, and Resistance
- Ohm's Law, Conductors, and Insulators
- Parallel Circuits
- Equivalent Circuits
- Applications of Kirchhoff's Laws
- Series-Parallel Circuits
- Voltage and Power
- Simplifying Circuit Analysis by Using Kirchhoff's Laws

Robotics Lab

This lab includes hands-on exercises that will show you how to design, build and program an autonomous robot.

It's a great orientation to electrical and computer engineering with lessons on circuits, components, instrumentation and electronic prototyping. In addition, students learn how to troubleshoot computer hardware and software.

Starting with basic movement and proceeding to sensor-based projects, students quickly learn how interface a small semi-autonomous wheeled robot to a microprocessor.



AC Circuit Theory

- Vital Statistics of AC Circuits
- Magnetism and Magnetic Circuits
- Induced Voltage and Current
- Inductance
- Mutual Inductance and Magnetic Coupling
- Transformers
- Electrical Charges and Capacitance
- Capacitors in Action
- Currents and Voltages in AC Circuits
- Using Semiconductor Diodes
- Operation of Semiconductor Devices
- Unregulated Power Supplies
- Regulated Power Supplies

Automation Systems

- Binary Coding and Computer Arithmetic
- Important Digital Integrated Circuits
- Industrial Control Overview
- Methods and Operation of the Controller
- DC Motors and Drives
- AC Motors and Drives
- Servo Motors and Servomechanisms
- Pressure Systems & Temperature Control
- Flow Control and Level Control Systems
- Analytical and Industrial Instrumentation
- Detection Sensors
- Programmable Controllers
- PLC Programming, Interfacing and Troubleshooting
- Motion Control
- Industrial Networking

Microcontrollers and Robotics

- Hardware, Software and LEDs
- Pushbuttons and Controlling Motion
- Measuring Rotation and Digital Displays
- Pushbuttons, Piezoelectric Speaker and Controlling Motion
- Testing the Servos
- Assembling the Boe-Bot
- Navigation – Tactical and Whiskers
- Navigation with Phototransistors
- IR Navigation
- Robotic Distance Control and Detection

END OF LESSONS REQUIRED
FOR CERTIFICATE

Electronics Technology with Laboratory

Course Description

Course 1B is designed for students with no previous electronics experience and provides a solid core of instruction in electronics. Students graduate as readily employable electronics technicians or may continue their education with full academic and tuition credit applied towards the more advanced CIE program Course 14B.

- 93 Lessons with Instructor Support
- Completion Time Allowed: 24 Months
- 201 Laboratory Experiments using CIE's Personal Training Laboratory with CIE's Multimeter
- Preparation for CET Exam
- Clock Hours: 1,035

What will you learn?

This program starts with the basics of electronics and then moves on to more advanced topics that include:

- AC and DC circuit theory
- Identifying components
- Working with printed circuit boards
- Relays
- Robots
- Regulated power supplies
- Troubleshooting digital systems and more



LESSONS

- | | | | |
|--|--|---|---|
| <ul style="list-style-type: none"> • Current and Voltage • Controlling Current and Voltage • Power Distribution • Portable Extension Cords • Static Electricity • Electric Currents and Semiconductor Devices • Fractions and Decimal Numbers • Reciprocals, Percentages, and Powers of Numbers • The Three Basics of Electric Circuits: Voltage, Current, and Resistance • Ohm's Law, Conductors, and Insulators • Connecting and Tracing Battery Circuits | <ul style="list-style-type: none"> • Identifying Components • Tracing Wiring on Printed Circuit Boards • Roots of Numbers, Ratio, and Proportion • Inverse Proportion and Negative Numbers • Parallel Circuits • Equivalent Circuits • Applications of Kirchhoff's Laws • Series-Parallel Circuits • Voltage and Power • Vital Statistics of AC Circuits • Magnetism and Magnetic Circuits • Induced Voltage and Current • Thinking Circuits and Automatic Switches | <ul style="list-style-type: none"> • Relays and Robots • Scientific Notation • Units of Measure • Inductance • Mutual Inductance and Magnetic Coupling • Transformers • Electrical Charges and Capacitance • Capacitors in Action • Rectifiers and Amplifiers • Transistor and FET Amplifiers • Reading and Using Graphs • Phasors and Formulas • Reliable Soldering Techniques • Working with Printed Circuit Boards | <ul style="list-style-type: none"> • Building a Siren with Flashing Light • Using Your Multimeter to Measure Resistance • Your Personal Training Laboratory • Series and Parallel Resistor Circuits • Power and DC Circuits • Simplifying Circuit Analysis by Using Kirchhoff's Laws • Practical Applications of Kirchhoff's Laws • Currents and Voltages in AC Circuits • Capacitors and Capacitive Circuits • Resonant Circuits • Inductors and Inductive Circuits |
|--|--|---|---|

NOTE: The first 36 lessons in Course 1B are also in Courses 1A, 2, 4, and 5.



What is a Certified Electronics Technician?

- Course 1B includes a study guide on how to prepare for the Associate-Level Certificated Electronics Technician (CET) exam.
- This test is administered by the International Society of Certified Electronics Technicians and has over 46,000 certified technicians across the globe! Certification enables employers to separate knowledgeable job applicants from those with less training and skills.
- Courses 1A, 2, 4, and 5 also include the CET Study Guide.

- | | | | |
|--|--|---|---|
| <ul style="list-style-type: none"> • Resonance and Filters • Using Semiconductor Diodes • Operation of Semiconductor Devices • Working with Semiconductor Diodes • Unregulated Power Supplies • Operation of Tubes and Transistors • Amplifier Circuitry • Fundamentals of Transformers • Unregulated Power Supply Characteristics • How To Work With Transistors • Transistors - Part I • Common-Emitter Amplifier Characteristics • Transistors - Part II | <ul style="list-style-type: none"> • Audio Amplifiers and Equipment • Operational Amplifiers • Operational Amplifier Characteristics • Silicon-Controlled Rectifiers and Unijunction Transistors: Theory and Applications • Regulated Power Supplies • Regulated Power Supply Characteristics • Working With FET's • Radio Frequency Amplifiers • Oscillators • Sinusoidal Oscillators • Measuring and Measuring Instruments • Measurement Techniques Laboratory | <ul style="list-style-type: none"> • Circuit Response to Non-Sinusoidal Waveforms • Time Constants • RC Filter Circuits • Understanding and Using the Oscilloscope • Optoelectronics • Digital Switching Units • Binary Coding and Computer Arithmetic • Logic Circuit Tracing by Using Boolean Algebra • Digital IC Families with Practical Operating Requirements • Clippers, Clampers, and Binaries • Pulse Processing Circuits • Multivibrators | <ul style="list-style-type: none"> • Important Digital Integrated Circuits • 555 Timing Circuits • Digital Systems and How To Troubleshoot Them • Electromagnetism and Relays • Systematic Troubleshooting • Basic Gates • Practical Digital Circuits • Sequential Logic Circuits |
|--|--|---|---|

END OF LESSONS REQUIRED FOR DIPLOMA

Optional Lesson at No Extra Charge:

- Associate-Level CET Study Guide

These lessons are not listed again for those courses in this catalog.



Broadcast Engineering

Course Description

Course 2 was designed to provide the specialized knowledge required for a career as a broadcast engineering technician at an AM radio station, FM radio station or at a TV station.

It is also valuable for the cable television technician who must maintain and repair studio equipment.

Now includes new learning modules on Audio Basics, Advanced Audio and Media along with an interactive Audio/Video Companion CD.

Learn about electronics along with emerging mobile media technologies and postproduction techniques.

- 95 Lessons with Instructor Support
- Completion Time Allowed: 24 Months
- Clock Hours: 915
- Preparation for CET and FCC Exams
- Graduates may be eligible to earn a Certified Broadcast Technologist certification (CBT) from the Society of Broadcast Engineers (SBE). SBE is the only organization devoted to the advancement of all levels and types of broadcast engineering.

This course explores important theories and principles related specifically to broadcasting, but because it does not contain any lab work, it is best suited to those students who already have some previous education or practical experience in electronics.

NEW - Advanced Audio and Media

Students learn the techniques and principles necessary for audio production including mobile media, game sound, smartphone, tablet, apps and digital audio. Postproduction topics include a discussion in editing and mixing for television, film, music and mobile media.

LESSONS

- First 36 lessons from Course 1B (see page 8)
- Simplifying Circuit Analysis by using Kirchoff's Laws
- Currents and Voltages in AC Circuits
- Resonant Circuits
- Using Semiconductor Diodes
- Operation of Semiconductor Devices
- Unregulated Power Supplies
- Operation of Tubes and Transistors
- Amplifiers
- How to Work with Transistors
- Audio Amplifiers and Equipment
- Radio Frequency Amplifiers
- Oscillators
- Operational Amplifiers
- Measuring Instruments
- Understanding and Using the Oscilloscope
- Regulated Power Supplies
- Systematic Troubleshooting
- Circuit Response to Non-Sinusoidal
- Clippers, Clampers and Binaries
- Behavior of Sound
- Hearing and Perception
- Studio and Control Room Basics
- Monitoring Sessions
- Microphones: Basics and Techniques

- Audio Consoles
- Recording Sessions
- Audio Synchronization
- Audio Signal Processors
- Audio Editing and Mixing
- Internet Audio
- Sound and Meaning
- Production, Sound and Hearing
- Acoustics
- Loudspeakers and Monitoring
- Microphones
- Mixers and Consoles
- Recording
- Synchronization
- Signal Processors
- Audio and the Internet
- Voice-Overs and Narration
- Dialogue Recording
- Studio Production
- Field Production
- Sound Design
- Sound Effects
- Music Underscoring
- Mobile Media Production
- Game Sound
- Music Recording
- Editing

- Overview of Mixing
- Premixing and Rerecording for Television and Film
- Music Mixdown
- Mixing for Mobile Media
- FCC Review Lessons - Part I
- FCC Review Lessons - Part II
- Pointers & Practice for Passing FCC General Class Examination, Part 1
- Pointers & Practice for Passing FCC General Class Examination, Part 2

END OF LESSONS REQUIRED FOR DIPLOMA

Optional Lesson at No Extra Charge:

- Associate-Level CET Study Guide. See Page 9.



Industrial Electronics with PLC Technology

Course Description

Learn to troubleshoot PLCs!

Course 5 will give a person with no prior experience the skills needed to program and troubleshoot PLCs. With the Allen-Bradley simulator lab, you'll be able to execute real world projects on your PC.

Students get a well rounded program that includes a thorough understanding of industrial electronics and essential troubleshooting techniques necessary to maintain, repair and program a wide array of industrial electronic equipment including robotics, servos and programmable logic controllers.

In addition, students graduate with the ability to read and understand many different types of schematics and operational manuals.

This course provides a well-rounded electronics education, but because it does not contain laboratory work, it is best suited for those students who already have some previous education or practical experience in electronics.

- 78 Lessons with Instructor Support
- Completion Time Allowed: 18 Months
- Clock Hours: 930
- Preparation for CET Exam (See page 9.)

LESSONS

- First 36 lessons from Course 1B (see page 8)
- Simplifying Circuit Analysis by Using Kirchhoff's Laws
- Currents and Voltages in AC Circuits
- Resonant Circuits
- Using Semiconductor Diodes
- Operation of Semiconductor Diodes
- Unregulated Power Supplies
- Operation of Tubes and Transistors
- Amplifiers
- How to Work With Transistors
- Audio Amplifiers and Equipment
- Radio Frequency Amplifiers
- Oscillators
- Operational Amplifiers
- Measuring Instruments
- Understanding and Using the Oscilloscope
- Regulated Power Supplies
- Systematic Troubleshooting
- Industrial Control Overview
- Methods and Operation of the Controller
- DC Motors and Drives
- AC Motors and Drives
- Servo Motors and Servomechanisms
- Pressure Systems and Temperature Control
- Flow Control and Level Control Systems
- Analytical and Industrial Instrumentation
- Detection Sensors
- Programmable Controllers
- PLC Programming, Interfacing and Troubleshooting
- Motion Control



**New
Allen-Bradley
Simulator!**

What will you learn?

- Component identification
- AC and DC circuit theory
- Working with printed circuit boards
- Designing & troubleshooting motion control circuits
- Pressure systems and flow control
- Robotics
- Programmable logic controllers
- PLC programming
- PLC troubleshooting
- Servomechanisms
- Servo motors
- Systematic troubleshooting and more!

- Functional Systems
- Latches
- Logical Gates Part 1: OR & AND
- Logical Gates Part 2: NOR & NAND
- Logical Gates Part 3: XOR, XNOR & NOT
- Timer Circuits Part 1
- Timer Circuits Part 2
- Sequencers Part 1
- Sequencers Part 2
- Counters Part 1
- Counters Part 2

- Control Circuits
- ADC/DAC Converts

END OF LESSONS REQUIRED
FOR DIPLOMA

Optional Lesson at No Extra
Charge:

- Associate-Level CET Study
Guide, (See page 9)

Electronics Engineering

Course Description

Course 6 is an advanced-level course designed for technicians and engineers who want a deeper understanding of electronic circuits and advanced mathematics.

Prerequisites are a high school diploma (or equivalent) with at least one year of algebra or geometry; or the completion of any CIE course (or equivalent), an in-depth working experience in the field of electronics, or the permission of CIE's Director of Instruction.

- 89 Lessons with Instructor Support
- Completion Time Allowed: 30 Months
- Clock Hours: 1,650
- Preparation for CET Exam

LESSONS

- Solving Linear Equations
- Algebraic Signs and Exponents
- Kirchhoff's Laws
- Algebraic Fractions
- Applied Fractional Equations
- Basic Circuit Principles Applied to Practical Design
- Digital Switching Units
- Binary Coding and Computer Arithmetic
- Logic Circuit Tracing Using Boolean Algebra
- Pulse Processing Circuits
- Network Theorems
- Coordinates and Angle Functions
- Applications of Trigonometric Functions
- Exponents, Radicals and Complex Numbers
- Phasor Representation of Steady-State Circuits
- Analytical Geometry - First Degree Equations
- Some Basic Concepts of Calculus
- Signal Waveforms and Their Application
- An Introduction to Solid State Design: Part I
- Advanced Network Theorems
- Diode Networks
- An Introduction to Solid State Design: Part II
- An Introduction to Solid State Design: Part III
- Ohm's and Kirchhoff's Laws Applied to AC Circuits
- Logarithms
- Decibels
- AC Circuit Analysis
- AC Power and Solving Stage Coupling Problems
- Resonant Circuits
- Systems of Linear Equations
- Linear Network Analysis
- Simplifying Network Analysis by Using Determinants
- Practical Matrix Theory for Engineers
- Two Port Linear Networks
- Quadratic Equations and Systems
- Higher Order Equations
- Trigonometric Equations and Identities
- Theory of Logarithms and Series
- Natural Logarithms
- Calculus, Part I: Analytical Geometry - Second Degree Equations
- Calculus, Part II: Basic Concepts in Differential Calculus
- Calculus, Part III: Further Differential Techniques and Applications of the Derivative
- Calculus, Part IV: Fundamentals of Integration
- Calculus, Part V: Applying Integral Calculus
- Calculus, Part VI: Derivatives of Transcendental Functions



Learn to Master the Following Topics:

- Solving Linear Equations
- Digital Switching Units
- Solid State Design
- AC Circuit Analysis
- Natural Logarithms
- Satellite Communications
- Digital Communications
- Antennas

- Calculus, Part VII: Integrating Transcendental Functions
- Calculus, Part VIII: Series Representations and Indeterminate Forms
- Calculus, Part IX: Fourier Series and Differential Equations
- Digital IC Families with Practical Operating Requirements
- Important Digital Integrated Circuits
- Digital Systems and How To Troubleshoot Them
- Circuit Response to Non-Sinusoidal Waveforms
- Transient Analysis: Part I
- Transient Analysis: Part II
- Transient Analysis: Part III
- Transient Analysis: Part IV
- Transient Analysis: Part V
- Transient Analysis: Part VI
- Steady State and Transient Network Analysis

- Resonant Circuits and Coupled Networks
- Filters
- Equalizers and Filter Network Synthesis
- Tuned Amplifiers
- Operational Amplifiers
- Basic Physics
- Static Magnetic Field Theory
- Electric Field Physics
- Fundamentals of Electricity Magnetism Mechanics and Heat
- DC Generators
- DC Motors and Efficiency of Electrical Machines
- Three Phase Circuits
- Three Phase Induction Motors
- Selection and Application of Three Phase Induction Motors
- Single-Phase Motors
- Introduction to Electronic Communications
- Frequency Generation

- Amplitude Modulation Trans & Reception
- Phase-Locked Loops & Frequency Synthesizers
- Single Sideband Communication Systems
- Angle Modulation Transmission
- Angle Modulation Receivers and Systems
- Transmission Lines
- Wave Propagation
- Antennas
- Digital Communications
- Data Communications
- Digital Transmissions
- Frequency - Division Multiplexing and Microwave Communications
- Satellite Communications

END OF LESSONS REQUIRED FOR DIPLOMA

Optional Lesson at No Extra Charge:

- Associate-Level CET Study Guide (See page 9)

Electronics Technology with Digital & Microprocessor Laboratories

Course Description

Course 14B is CIE's most advanced troubleshooting program. This course expands on the lessons from Course 1B to prepare students for jobs in computer maintenance, advanced industrial control/instrumentation systems, and microprocessor control.

This is a laboratory-intensive course that contains all the lessons and equipment described for Course 1B plus the equipment and lessons listed below.

- 155 Lessons with Instructor Support
- Completion Time Allowed: 42 Months
- Clock Hours: 1,590
- Over 140 Laboratory Experiments using CIE's Personal Training Laboratory, Multimeter, and Digital Security Control Device
- Preparation for CET Exam

What will you learn?

This program starts with the basics of electronics and then moves on to more advanced topics that include:

- AC and DC circuit theory
- Identifying components
- Working with printed circuit boards
- Relays & Robots
- Regulated power supplies
- Troubleshooting digital systems
- PIC Program Coding and the 68HC11 Microcontroller
- Oscilloscope Measurements
- Introduction to Computers and Microprocessors
- Digital Integrated Circuits
- Digital Systems and How To Troubleshoot Them
- Plus more!

LESSONS

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> • All lessons from Course 1B (see page 8) • Safety • Introduction to Television • The Television System-Functional Block Diagram • Television Troubleshooting Techniques • Power Supplies • Horizontal Circuits • High-Voltage Circuits • Vertical Circuits • Tuners • Intermediate Frequency Amplifiers • Video Circuits and the CRT • AGC Circuits • Synchronization Circuits • Introduction to Color Television • Color Circuits • Color Symptom Troubleshooting • Color TV Setup • Sound Circuits • Advanced Troubleshooting Techniques • Introduction to Digital Electronics • Number Systems • Fundamentals of Boolean Algebra | <ul style="list-style-type: none"> • Karnaugh Maps • NOR and NAND Gate Circuits • Discrete Logic Gates • Digital Integrated Circuits • Digital Flip-Flops • One-Shots, Astables and Schmitt Triggers • Counter Design • Modulus Counters • Shift Registers and Counters • Binary Codes and Converters • Multiplexers-Demultiplexers • CMOS Digital Logic • Digital Interfacing Circuits • ROMs, PROMs and PLAs • Introduction to Computers and Microprocessors • Oscilloscope Measurements • Oscilloscope Triggering • Oscilloscope Analysis of Analog and Digital Circuits • Registers • Arithmetic Logic Units • Timing and Control • Memory Units • Introduction to Computer Hardware | <ul style="list-style-type: none"> • Introduction to Computer Software • Computer Arithmetic • 68HC11 Programming, Part A • 68HC11 Programming, Part B • Branching and Loops • Indexing Through Memory • Subroutines • Reading Assembly Listings • Memory Systems I • Memory Systems II • General Purpose I/O • HC11 Interrupts and Resets • Analog Capture Port-Port E • Timed Events-Port-A • Serial Communication-Port D • C-Language: A Higher-Level Language <p>END OF LESSONS REQUIRED FOR DIPLOMA</p> <p>Optional Lesson at No Extra Charge:</p> <ul style="list-style-type: none"> • Certified Electronics Technician (CET) Study Guide (Associate-Level) |
|--|---|--|

Wireless & Electronic Communications

Course Description

CIE's Wireless and Electronic Communications course was designed to provide a thorough understanding of Wireless and Personal Communications along with providing a solid core of instruction in electronics.

This program explores important theories and principles related specifically to communications, but because it does not contain any laboratory work, it is best suited to those students who already have some previous education or practical experience in electronics.

- 84 Lessons with Instructor Support
- Completion Time Allowed: 24 Months
- Clock Hours: 930
- Preparation for CET and FCC Exams

What will you learn?

- Basic Electronics
- Diagram and Schematic Reading
- Component Identification
- Digital and Data Communications
- Wireless Communications
- Digital Cellular Technology
- Radio Frequency Communications
- Fixed Wireless
- Personal Area Networks
- Local Area Networks & Wide Area Networks
- Lasers in Communications and Industry
- Communications by Fiber Optics

LESSONS

- First 36 lessons from Course 1B (see page 8)
- Simplifying Circuit Analysis by Using Kirchhoff's Laws
- Currents and Voltages in AC Circuits
- Resonant Circuits
- Using Semiconductor Diodes
- Operation of Semiconductor Devices
- Unregulated Power Supplies
- Operation of Tubes and Transistors
- Amplifiers
- How to Work With Transistors
- Audio Amplifiers and Equipment
- Radio Frequency Amplifiers
- Oscillators
- Operational Amplifiers
- Measuring and Measuring Instruments
- Understanding and Using the Oscilloscope
- Regulated Power Supplies
- Systematic Troubleshooting
- Modern Modulation Methods
- Detection and Frequency Conversion
- Receiving Equipment
- Batteries, Control Motors, and Other Power Sources
- Frequency Modulation
- Transmission Lines and Wave Guides
- Antennas and Wave Propagation
- Transmitters
- Suppressed-Carrier Modulation and Single Sideband Transmission
- RF Amplifier Analysis
- Microwave Communications Systems
- Monochrome and Color Television
- Programmable Controllers
- FCC Review Lessons Element 1 Part 1
- FCC Review Lessons Element 1 Part 2
- Pointers and Practice for Passing FCC GC Exam Part 1
- Pointers and Practice for Passing FCC GC Exam Part 2
- Digital and Data Communications
- Lasers in Communications and Industry
- Communication by Fiber Optics
- Introduction to Wireless Communication
- How Wireless Works
- Understanding Wireless Radio Frequency Communication
- Infrared
- Bluetooth
- Low Speed Wireless Local Area Network
- High Speed WLANs and WLAN Security
- Digital Cellular Phones
- Fixed Wireless
- Wireless Communication in Business
- History of Wireless Communication and Technical Summaries

END OF LESSONS REQUIRED FOR DIPLOMA

Optional Lessons at No Extra Charge:

- Associate-Level CET Study Guide (See page 9)

Intro to Game Development & Mobile Apps



Course Description

This Certificate course will give a person with no prior computer experience the skills and confidence needed to develop games for mobile devices and other platforms.

Begin by learning how to develop apps on today's most popular smartphone platforms like iOS, Android and Windows phone. Hands-on tutorials and step-by-step instructions show you how to develop an app from scratch and publish it.

Students then apply their programming experience to build a game for an iOS device - from initial idea to publication in Apple's App store.

And finally, learn how to build games - both single and multiplayer - for different platforms.

Graduate with a solid core of skills necessary to design, build and publish games that can be played on a variety of electronic devices.

- 40 Lessons with Instructor Support
- Completion Time Allowed: 9 Months
- Clock Hours: 510

LESSONS

Mobile Applications Programming

- Computer of the Future
- Small Device Development
- Small Device Programming
- Android App Developer
- MOTODEV studio
- Apple iOS
- Windows Phone 7
- Web Applications
- Cross-Platform Development
- Final Exam

**New
Course!**



What will you learn?

- How to Design Games for Multiplatforms
- How to Develop Apps
- How to Storyboard & Debug Problems
- How to Create Games for iPhone and iPad
- How to Submit a Game to Apple's App Store
- How to Build both Single and Multiplayer Games

Introduction to iPhone and iPad Apps

- Getting Started
- Blast Off
- Keep On Trucking
- Buttons and Labels
- Touches
- Switches
- Storyboards
- Debugging
- Mapkit and Storyboarding
- Mapkit and Tables & Storyboarding to Multimedia Platforms

iPhone Game Development

- Introduction to Game Development
- Images, GIMP, and Creativity
- Music, Sound Effects and Audacity
- Game Graphics
- Game Music and Sound Effects
- Multimedia Fusion (MMF)
- Games in MMF
- Specific Information and Deploying an iOS Device
- Space Game and Simulated 3D
- The Deck is Stacked

Multiplatform Game Development

- Introduction to Game Maker
- Your First Game
- More Actions
- Target the Player
- Game Design-Part 1/Inheritance
- Maze Games
- Game Design-Part 2/Co-op Games
- Competitive Games
- Game Design-Part 3/Programming in GML
- Intelligent Behavior-AI

END OF LESSONS REQUIRED
FOR CERTIFICATE

Computer Programming with JAVA and C#



Course Description

CIE's Computer Programming with JAVA and C# was designed to provide an individual having little or no computer background with the knowledge to join the ever-growing field of computer programming!

Students graduate with the ability to understand, analyze and program various computer applications used in the business, manufacturing and service industries today.

In addition, you will be able to develop and build Web Pages and learn how to install and run applications and perform basic system management on your PC.

- 48 Lessons with Instructor Support
- Completion Time Allowed: 12 Months
- Clock Hours: 810
- Course 1C requires Windows • Microsoft Internet Explorer • Connection to the internet

LESSONS

Introduction to Computers

- Digital Literacy and the Internet
- Computers, Mobile Devices, Programs and Apps
- Digital Safety, Security and Inside Computers and Mobile Devices
- Input, Output and Digital Storage
- Operating Systems
- Communications and Networks
- Information and Data Management
- Information Systems and Program Development



What will you learn?

This unique distance learning course includes 48 lessons on:

- Introduction to Computers
- Operating Systems
- Create a Multimedia Web Page
- Intro to JAVA
- C# Programming

Operating Systems

- Introduction to Operating Systems
- Computer Security Basics
- Desktop Virtualization
- Windows 7
- Windows 8
- Under the Windows Desktop: Supporting and Troubleshooting Windows
- Mac OS X on the Desktop
- Linux on the Desktop
- The Command-Line Interface
- Connecting Desktops and Laptops to Networks

An Introduction to Web Page Design

- Web Page Development with Hypertext Links
- Designing a Web Page
- Frames and Tables in Web Pages

- Creating Web Page Forms
- Working with Cascading Style Sheets
- Programming with JavaScript
- Working with JavaScript Objects & Events
- Creating a Multimedia Web Page
- Working with Dynamic Page Layout I
- Working with Dynamic Page Layout II

Introduction to Java Programming:

- Intro to Computers, the Internet and WWW
- Intro to Java Applications
- Intro to Classes & Objects
- Control Statements Part 1
- Control Statements Part 2
- Methods: A Deeper Look
- Arrays
- Classes and Objects: A Deeper Look

- Object Oriented Programming: Inheritance
- Programming Files

C# Programming

- OOP and Creating a Simple Application
- Manipulating and Storing Data in Objects
- Program Flow Decisions and Exceptions
- Adding Methods to Objects
- Program Loops
- Arrays and Collections
- Encapsulation
- User Interface Objects
- Data Files and Persistence
- Inheritance and Polymorphism

END OF LESSONS REQUIRED FOR
DIPLOMA

A+ Certification & Computer Technology

Course Description

Learn to Troubleshoot Computers and prepare for the A+ Certification!

CIE's A+ Certification course will train individuals with little or no computer background about computer technology, computer troubleshooting and prepare them to pass the recently updated CompTIA A+ Certification exam.

The CompTIA A+ certification is the starting point for a career in IT. The exam covers maintenance of PCs, networking, mobile devices, laptops, operating systems, printers, security and troubleshooting techniques.

Course 2C includes 33 lessons with instructor support that culminates in a Diploma from Cleveland Institute of Electronics in A+ Certification and Computer Technology.

- Completion time allowed is 8 months
- Clock Hours: 540

After you complete all 33 lessons you will be prepared to take the A+ Certification exam from CompTIA and do the following:

- Troubleshoot and Maintain Computers
- Hard Drive Installation and Support
- Networking Fundamentals
- Work with Different Operating Systems
- Work with Printers, Notebooks and Memories
- Work with Multimedia Technology
- Disaster Recovery and Virus Control



LESSONS

Introduction to Computers

- Digital Literacy and the Internet
- Computers, Mobile Devices, Programs and Apps
- Digital Safety, Security and Inside Computers and Mobile Devices
- Input, Output and Digital Storage
- Operating Systems
- Communications and Networks
- Information and Data Management
- Information Systems and Program Development



**Updated
Lessons!**

What is A+ Certification?

The CompTIA A+ Certification is one of the most desired credentials in the Information Technology industry.

A+ Certification signifies that the certified individual possesses the knowledge and skills essential for a successful entry-level computer service technician, as defined by experts from companies across the industry.

A+ Certification is sponsored by the Computing Technology Industry Association (CompTIA) and is backed by major computer hardware and software vendors, distributors, resellers and publications.

CIE does not administer the CompTIA Certification exam. Visit www.comptia.org to find the nearest CompTIA Certification testing center.



Operating Systems

- Introduction to Operating Systems
- Computer Security Basics
- Desktop Virtualization
- Windows 7
- Windows 8
- Under the Windows Desktop: Supporting and Troubleshooting Windows
- Mac OS X on the Desktop
- Linux on the Desktop
- The Command-Line Interface
- Connecting Desktops and Laptops to Networks

A+ Certification Prep

- First Look at Computer Parts and Tools
- Working Inside a Desktop Computer and Laptop
- Motherboards, Supporting Processors and Upgrading Memory
- Supporting the Power System and Troubleshooting Computers
- Supporting Hard Drives
- Installing Windows
- Supporting I/O Devices
- Maintaining and Optimizing Windows

- Troubleshooting Windows and Applications and Windows Startup Problems
- Connecting to and Setting up a Network
- Mobile Operating Systems
- Windows Resources on a Network
- Security Strategies
- Supporting Printers & Customizing a System
- Virtualization, Linux and Mac OS X

END OF LESSONS REQUIRED
FOR DIPLOMA

Computer Security Specialist

Course Description

Learn how to design, install and manage computer security systems.

CIE's Computer Security Specialist course was designed to provide the specialized knowledge required for a career in Cyber Security. This field is growing rapidly as cyber attacks on business and government servers become more common.

Master computer security techniques in an easy-to-understand format. Students learn to design and implement computer security systems and related protocols in different settings and protect networks from attack.

After you complete this program you'll receive a Certificate along with the opportunity to prepare for the CompTIA Security+ certification.

Course 6C includes 35 lessons with instructor support that culminates in a Certificate from Cleveland Institute of Electronics.

- Completion time allowed is 8 months
- Clock Hours: 270

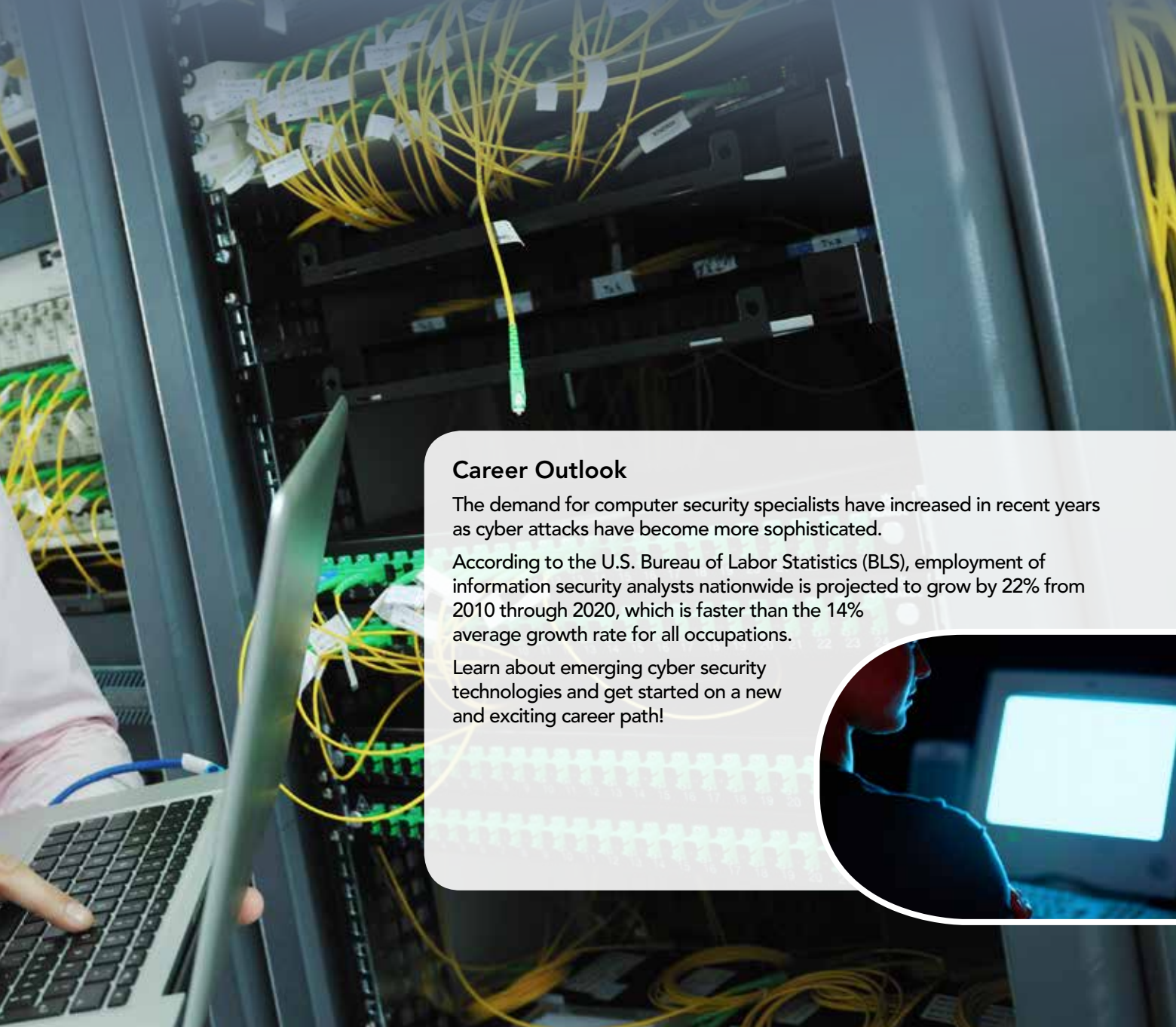
Learn how to:

- Identify threats to a computer network
- Address cyber terrorism, industrial espionage & encryption
- Defend against DoS attacks
- Install, design, and implement a virtual private network
- Analyze log files for network forensics
- Master concepts of firewalls and VPNs
- Use tools & techniques used by hackers
- Implement strategies to defend networks from outside attacks

LESSONS

Computer Security

- Introduction to Computer Security
- Networks and the Internet
- Cyber-stalking, Fraud and Abuse
- Denial-of-Service Attacks
- Malware
- Project 1
- Techniques Used by Hackers
- Industrial Espionage in Cyberspace
- Encryption
- Computer Security Software
- Project 2



Career Outlook

The demand for computer security specialists have increased in recent years as cyber attacks have become more sophisticated.

According to the U.S. Bureau of Labor Statistics (BLS), employment of information security analysts nationwide is projected to grow by 22% from 2010 through 2020, which is faster than the 14% average growth rate for all occupations.

Learn about emerging cyber security technologies and get started on a new and exciting career path!



- Security Policies and Awareness
- Network Scanning and Vulnerability Scanning
- Cyber Terrorism and Information Warfare
- Introduction to Forensics / Project 3

Firewalls and VPNs

- Introduction to Information Security
- Security Policies and Standards
- Authenticating Users
- Project 1
- Introduction to Firewalls

- Packet Filtering
- Firewall Configuration and Administration
- Project 2
- Working with Proxy Servers and Application-Level Firewalls
- Implementing the Bastion Host
- Encryption – The Foundation for the Virtual Private Network
- Setting Up a Virtual Private Network

Security Policies

- Introduction to Security

- Desktop Security
- Internet Security
- Personal Security
- Wireless Network Security
- Enterprise Security
- Case Project 1
- Case Project 2

END OF LESSONS REQUIRED
FOR CERTIFICATE

IT Security

**New
Course!**

LESSONS

Introduction to Computers

- Digital Literacy and the Internet
- Computers, Mobile Devices, Programs and Apps
- Digital Safety, Security and Inside Computers and Mobile Devices
- Input, Output and Digital Storage
- Operating Systems
- Communications and Networks
- Information and Data Management
- Information Systems and Program Development

Applied Ethics

- An Overview of Ethics

- Ethics for IT Professionals & IT Users
- Computer and Internet Crime
- Privacy
- Freedom of Expression
- Intellectual Property
- Software Development
- The Impact of Information Technology on the Quality of Life
- Social Networking and Ethics of IT Organizations
- Final Exam

Computer Security

- Introduction to Computer Security
- Networks and the Internet

- Cyber-stalking, Fraud and Abuse
- Denial-of-Service Attacks
- Malware
- Project 1
- Techniques Used by Hackers
- Industrial Espionage in Cyberspace
- Encryption
- Computer Security Software
- Project 2
- Security Policies
- Network Scanning & Vulnerability Scanning
- Cyber Terrorism and Information Warfare
- Introduction to Forensics / Project 3

Course Description

Learn to create, install and maintain IT Security systems. Course 7C expands on the Computer Security Specialist certificate program (Course 6C) to include lessons on **Network Defense and Countermeasures, Security Techniques** and **Ethics**.

It's a well-rounded program that includes essential troubleshooting techniques necessary to repair and secure a wide array of computer networks and electronic devices.

This new Diploma course will give a person with no prior computer experience the skills and confidence needed to enter the IT Security field.

Cyber Security is one of the fastest growing fields in IT and many organizations employ specialists to help keep their information systems safe. Financial institutions, health care, aviation, utilities are among the many industries that IT Security technicians are employed.

Course 7C includes 63 lessons with instructor support that culminates in a Diploma from Cleveland Institute of Electronics.

- Completion time allowed is 12 months
- Clock Hours: 630

Learn how to:

- Master PC fundamentals
- Identify and defend against virus attacks, cyber terrorism, industrial espionage and more
- Manage & Encrypt Data
- Use tools used by hackers
- Install and implement VPNs
- Design Firewalls
- Network Forensics
- Identify techniques used to attack hosts
- Scan Networks

Firewalls and VPNs

- Introduction to Information Security
- Security Policies and Standards
- Authenticating Users
- Project 1
- Introduction to Firewalls
- Packet Filtering
- Firewall Configuration and Administration
- Project 2
- Working with Proxy Servers and Application-Level Firewalls
- Implementing the Bastion Host
- Encryption - The Foundation for the VPN
- Setting Up a VPN / Project 2

Network Defense and Countermeasures

- Network Defense Fundamentals
- Security Policy Design
- Security Policy Implementation
- Network Traffic Signatures
- Virtual Private Network Concepts
- VPN Implementation
- Intrusion Detection System Concepts
- Intrusion Detection: Incident Response
- Choosing and Designing Firewalls
- Case Study

Security Policies

- Introduction to Security
- Desktop Security
- Internet Security
- Personal Security
- Wireless Network Security
- Enterprise Security
- Case Project 1
- Case Project 2

END OF LESSONS REQUIRED
FOR DIPLOMA

CompTIA Network+ Certification & Computer Technology

Course Description

Learn Computer Networking with CIE's CompTIA Network+ Course!

This course will train individuals with little or no computer networking background about computer technology and prepare them to pass the recently updated CompTIA Network+ Certification exam.

Course 3C includes 30 lessons with instructor support that culminates in a Diploma from Cleveland Institute of Electronics in Network+ Certification and Computer Technology.

- Completion time allowed is 8 months
- Clock Hours: 450

After you complete all 30 lessons you will be prepared to take the Network+ Certification test from CompTIA and do the following:

- Understand Networking Standards
- Maintain and Upgrade a Network
- Troubleshoot Network Problems
- Network with TCP/IP and the Internet
- Networking with Unix and more!



LESSONS

What is Network+?

The CompTIA Network+ Certification validates competency in networking administration and support.

Those holding Network+ Certification demonstrate critical knowledge of media and topologies, protocols and standards, network implementation and network support.

This certification is geared towards those with nine months experience in network administration and support.

Introduction to Computers

- Digital Literacy and the Internet
- Computers, Mobile Devices, Programs and Apps
- Digital Safety, Security and Inside Computers and Mobile Devices
- Input, Output and Digital Storage
- Operating Systems
- Communications and Networks
- Information and Data Management
- Information Systems and Program Development

Operating Systems

- Introduction to Operating Systems
- Computer Security Basics

- Desktop Virtualization
- Windows 7
- Windows 8
- Under the Windows Desktop: Supporting and Troubleshooting Windows
- Mac OS X on the Desktop
- Linux on the Desktop
- The Command-Line Interface
- Connecting Desktops and Laptops to Networks

Network+ Certification Preparation

- An Introduction to Networking
- How Computers Find Each Other on Networks



**Updated
Lessons!**

- How Data Is Transported Over Networks
- Structured Cabling and Networking Elements
- Network Cabling
- Wireless Networking
- Cloud Computing and Remote Access
- Network Risk Management
- Unified Communications and Network Performance Management
- Network Segmentation and Virtualization
- Wide Area Networks
- Industrial and Enterprise Networking

END OF LESSONS REQUIRED
FOR DIPLOMA

Career Paths

The CompTIA Network+ certification is a strong foundation that can be applied to a wide variety of careers in many industries. Combined with networking experience, the career options listed here are ideal for Network+ certified individuals.

- Field Support Technician (entry level)
- Network Administrator (entry level)
- Network Support Technician (entry level)

Instructor Assistance:

Contact our instructors anytime you have a question with your course work. They'll work with you one-on-one to answer your questions and provide technical assistance when needed.

Special Note:

The instruction staff at CIE recommends that students have a solid foundation in PC Hardware and troubleshooting before taking this course. If you're not comfortable with your PC hardware and troubleshooting skills they suggest taking CIE's A+ Certification and Computer Technology course (course 2C) as a prerequisite to the Network+ course (course 3C).

Introduction to Computers and Microsoft Office

Course Description

Learn important computer fundamentals while creating professional looking documents with Microsoft Office!

No previous computer experience is required.

This course will train individuals with little or no computer background how to run and maintain a PC and be proficient with Microsoft Office.

Step-by-step learning labs cover real world projects in Excel, Word, Access & Power Point.

Gain valuable computer career skills employers are looking for without leaving your home!

Course 4C includes 30 lessons with instructor support that culminates in a Diploma from Cleveland Institute of Electronics.

Start training to become a Data Processor or Computer Assistant.

- Completion time allowed: 8 months
- Clock Hours: 450

What will you learn?

- Computer Hardware
- Software Fundamentals
- Microsoft Windows
- Microsoft Word
- Microsoft Excel
- Microsoft Access
- Microsoft Power Point
- Printers and Fonts
- Maintaining Computers
- Graphics
- Internet

LESSONS

Introduction to Computers

- Digital Literacy and the Internet
- Computers, Mobile Devices, Programs and Apps
- Digital Safety, Security and Inside Computers and Mobile Devices
- Input, Output and Digital Storage
- Operating Systems
- Communications and Networks
- Information and Data Management
- Information Systems and Program Development

Operating Systems

- Introduction to Operating Systems
- Computer Security Basics
- Desktop Virtualization
- Windows 7
- Windows 8
- Under the Windows Desktop: Supporting and Troubleshooting Windows
- Mac OS X on the Desktop
- Linux on the Desktop
- The Command-Line Interface
- Connecting Desktops and Laptops to Networks

Introduction to Microsoft

- Word Project 1
- Word Project 2
- Word Project 3
- Excel Project 1
- Excel Project 2
- Excel Project 3
- Access Project 1
- Access Project 2
- Access Project 3
- PowerPoint Project 1
- PowerPoint Project 2
- PowerPoint Project 3

END OF LESSONS REQUIRED
FOR DIPLOMA

The Resources And Service You Need To Succeed!

Getting off to a good start

Your education is as important to CIE as it is to you. That's why we've devoted a full-time support staff to help you with everything from enrollment and tuition payment information to questions concerning lesson shipments, academic transcripts, graduation requirements... even bookstore credits!

CIE's Student Services staff is concerned with your progress and will provide you with the immediate, personal attention you deserve.

RESOURCES

CIE Bookstore

CD courses covering computers, robotics, satellites, fiber optics, security systems and other topics related to electronics & computer technology are available to you through the CIE Bookstore catalog.

The Bookstore catalog also includes study aids, test equipment, tools, clothing and entertainment items.

As a CIE student, you will automatically receive the catalog and may continue receiving it for as long as you wish after you graduate.

Reference Library

CIE maintains a well-stocked technical reference library with a wide variety of books, magazines, trade and scientific journals available. This is the same library that is widely used by CIE's own faculty in the preparation of your original lesson plan materials, as well as being used as a reference for editing technical material, assisting students and testing lesson experiments.

Employment Assistance

As a CIE graduate, we make sure you get a jump-start on the job market.

Need help in preparing your resume? You will be eligible to receive up to 50 professionally prepared resumes of your own to present to potential employers. And we will also provide you with an official letter of recommendation direct from the President of CIE.

Optional Laboratory Equipment

As a student in a CIE lab course, your equipment is already included in your tuition; however, many students prefer to purchase professional-quality test equipment to use in commercial or industrial applications after graduation. To meet this need, CIE offers optional upgraded test equipment such as soldering irons, multimeters and oscilloscopes. For those students or re-enrollees who already own lab equipment, CIE offers Bookstore credit that can be applied toward any product offered in the Bookstore catalog.

On-Line Exams

You have the option of taking your exams on-line on our e-grade web site. Your graded exams will be e-mailed back to you within 24 hours. Save time and money by taking your exams on-line!

The Electron

CIE publishes its school newspaper at www.theelectron.net

Features:

Technical Information

Your Career in Electronics

Alumni Forum

Q and A / CIE Instructors Corner

School Calendar:

CIE is open every Mon - Fri from 8:30 AM to 6:00 PM.

CIE is not open the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. CIE operates a half-day from 8:30 AM to 12:00 Noon on Christmas Eve and New Year's Eve. If a holiday falls on a Sunday, CIE will be closed on the following Monday.

Getting Started . . . Enrolling As A CIE Student

Getting started

At CIE it's as simple as a toll free phone call (1-800-243-6446), a visit to our website (www.cie-wc.edu) or just following the instructions on your Enrollment Agreement. The sooner you get started the faster you'll realize your career goals.



Enrollment

Getting Started... Enrolling as a CIE student

CIE's Career Courses include every Diploma program. They are designed to get you started in electronics/computer technology as quickly as possible by focusing your instruction on a particular career goal.

How To Enroll

For enrollment in a CIE Career Course, all you need to do is follow the instructions on the Enrollment Agreement and submit it to CIE. Or you can enroll on-line at www.cie-wc.edu or call a CIE admissions advisor at (800) 243-6446.

You can start a course at any time of the year.

There are some areas of enrollment where you may want to be particularly careful. For instance:

- Please be sure to include the appropriate tuition payment for the course work you have selected. Payment in full, or the appropriate down payment may be made through VISA, MasterCard, Discover, American Express, CIE AutoPay, PayPal, check or money order.
- If you are not a U.S. citizen or resident, tuition must be paid in U.S. funds. Please refer to CIE's : A Guide to Prospective Students Living Outside of the U.S.A.

Financial Assistance

If you are unable to pay the full tuition amount listed on your enrollment agreement, you may be able to apply for the CIE Financing Special Education Loan. With this tuition loan plan, you could finance your education by making a down payment and monthly payments directly to CIE.

Open Enrollment Policy

CIE has an open enrollment policy. Each course is monitored by start date/end date by clock hours in Career/Diploma course(s).

You should have a high school diploma or recognizable equivalent. Exceptions are made for a prospective student with previous electronics experience, or other educational skills and/or experiences indicating an ability to pass the selected course work.

CIE does not discriminate on the basis of sex, race, creed, color, age, national origin or handicap in the admission of students.

All Enrollment Applications are subject to final approval by the CIE Registrar. If your background does not appear suitable for the course work you have selected, the Registrar may recommend alternatives to you.

If you agree and are accepted, your first lesson shipment will be sent to you. If you are not accepted by CIE, all funds you may have submitted already with your Enrollment Application will be returned promptly.

Graduation Requirements

To qualify for graduation, it is necessary that a student complete all of the diploma and program requirements and maintain a 70% cumulative grade point average, or better. All financial obligations to CIE must be settled along with submitting all proper documentation before a diploma will be granted for a Career Course.

Tuition

Please refer to CIE's enrollment agreement, www.cie-wc.edu or page 33 of this catalog. You are entitled to the tuition as stated at the time of enrollment through graduation. Should your enrollment be terminated for 60 days or longer, upon re-enrollment you may be charged the cost of the current tuition.

Student Records

Transcripts of student grades are available. CIE will send photocopies of study records only upon a student's written and signed request. Students may challenge the authenticity or accuracy of any item in their student record. Upon presentation of this information, CIE will judge the merit of the information and take corrective action if needed. If the student and CIE cannot reach an agreement on a contested matter, the student has the right to enter a statement into his/her student record regarding the discrepancy.

Grievance Procedure

When a student believes that there are circumstances which warrant an appeal of a grade received, the student should contact the Course Instructor. If the student does not believe the grade was appropriate, the student may request a grade change. In order to receive a grade change, the student must submit, in writing, justification to the Dean of Instruction. The written request must contain a detailed explanation of all items the student wishes to be considered.

The student will be notified of the Dean's decision. If the student feels this decision was inappropriate, then a petition may be presented to the President of CIE whose decision will be final.

Grievances Regarding Education and Services

If a student has a problem or complaint, the student may register the problem or complaint with the President of CIE. In addition, the student can register the complaint with the State Board of Career Colleges and Schools, 30 East Broad Street, 24th Floor, Suite 2481, Columbus, Ohio 43215. Toll Free: (877) 275-4219 or local (614) 466-2752

Course Title	Tuition	Down Payment	Total Amount Finance	Finance Charge	APR	Total Payments	Monthly Installments	Final Payment
A+ Certification (2C)	\$1,425	\$100	\$1,325	\$102	9%	\$1,427	19 @ \$75	\$2
Network+ (3C)	\$1,425	\$100	\$1,325	\$102	9%	\$1,427	19 @ \$75	\$2
Intro to Computers and MS Office (4C)	\$1,425	\$100	\$1,325	\$102	9%	\$1,427	19 @ \$75	\$2
Computer Security Specialist (6C)	\$1,425	\$100	\$1,325	\$102	9%	\$1,427	19 @ \$75	\$2
Introduction to Game Development & Mobile Apps (8C)	\$1,425	\$100	\$1,325	\$102	9%	\$1,427	19 @ \$75	\$2
Computer Programming (1C)	\$1,975	\$75	\$1,900	\$188	9%	\$2,088	24 @ \$85	\$48
Broadcast Engineering (2)	\$1,975	\$75	\$1,900	\$188	9%	\$2,088	24 @ \$85	\$48
Wireless & Electronic Communications (4)	\$1,975	\$75	\$1,900	\$188	9%	\$2,088	24 @ \$85	\$48
Industrial Electronics with PLC (5)	\$1,975	\$75	\$1,900	\$188	9%	\$2,088	24 @ \$85	\$48
IT Security (7C)	\$1,975	\$75	\$1,900	\$188	9%	\$2,088	24 @ \$85	\$48
Electronics Technology with Lab (1B)	\$2,525	\$75	\$2,450	\$321	9%	\$2,771	32 @ \$85	\$51
Automation & Robotics with Lab (5B)	\$2,525	\$75	\$2,450	\$321	9%	\$2,771	32 @ \$85	\$51
Electronics Engineering (6)	\$3,615	\$75	\$3,540	\$590	9%	\$4,130	41 @ \$100	\$30
Electronics Technology with Digital & Microprocessor Lab (14B)	\$4,945	\$100	\$4,845	\$1,124	9%	\$5,969	56 @ \$105	\$89

Refund Policy

You may request to cancel in any manner, but a written request is recommended. Tuition refunds will be based on the date you cancel, as follows:

1) CAREER COURSES (1A - 14B): If the student cancels within 5 calendar days after midnight of the day the student signs the Enrollment Agreement (FULL REFUND PERIOD), the student will receive a full refund with no further obligation.

2) If the student cancels after the FULL REFUND PERIOD but before the school receives the first completed lesson, the student will be charged a registration fee of 15% of the tuition or \$125, whichever is less.

3) If the student cancels after the school receives the first completed lesson, the student's tuition obligation will be a registration fee plus a portion of the remaining tuition as defined below:

Percentage of Course Lessons Completed	Amount of Refundable Tuition Obligated
10% or less	10% of tuition
Between 11% - 25%	25% of tuition
Between 26% - 50%	50% of tuition
Over 50%	Obligated for full tuition



Textbook Fees

Students who enroll in courses 1C, 2, 2C, 3C, 4, 4C, 5, 5B, 6C, 7C, 8C or 14B are responsible for purchasing a limited number of textbooks that are not included in tuition.

You can buy your textbooks from CIE's Bookstore or purchase them from another source.

Please visit CIE's web site at www.cie-wc.edu/textbook_prices.aspx for a current list textbook prices, textbook titles and ISBN numbers.

Courses 1B, 2, 4, 5, 5B, 6 & 14B require a \$15 book fee.

Textbook Buyback Program

Some CIE lesson modules include textbooks that qualify for our Textbook Buyback Program.

The program enables you to sell your textbooks back to CIE for tuition credit once you are finished with them.

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(Note: * designates Instructional Staff Member
** designates CIE's Director of Instruction)

Graduate As a Fully-Qualified Electronics or Computer Professional

Professional Certification Options

Earn a diploma from CIE and you can qualify for a professional certification from CompTIA or the International Society of Certified Electronics Technicians.

Certification enables employers to separate knowledgeable job applicants from those with less training and skills.

CompTIA A+ and Network+ Certification

CompTIA certifications are recognized as industry standards for foundation-level information technology (IT) skills.

They are one of the best ways to break into the IT field and build a solid career.

With more than 19,000 members in 89 countries, CompTIA is the leading global IT trade association with influence in many areas of the IT industry worldwide.

Certified Electronics Technician (CET) Certification

At no extra cost to you, CIE offers graduates the professional preparation they may desire to pass the Associate Level of the Certified Electronics Technician (CET) Exam administered by the International Society of Certified Electronics Technicians (ISCET). They have over 46,000 certified technicians across the globe.

Certified Broadcast Technologist (CBT)

Graduates may be eligible to earn a Certified Broadcast Technologist (CBT) certification from the Society of Broadcast Engineers (SBE). SBE is the only organization devoted to the advancement of all levels and types of broadcast engineering.

When you graduate

CIE has the resources with its patented lessons and lab exercises to teach students the essential technical, academic and employable skills required for high-tech jobs.

CIE graduates have applied their training to numerous challenging fields from broadcast engineering to high-tech manufacturing and robotics to sophisticated new microprocessor and computer technology.

As technology continues to grow, so will the demands for highly trained electronics and computer professionals.

Graduate Options and Honors

IEEE

The Institute of Electrical and Electronics Engineers offers student membership to qualified CIE students.

Activities include special seminars and participation in the conventions of the national organization.

The IEEE — the largest professional engineering society in the world — can also offer CIE students and members the opportunity to participate in the activities of their local chapters.

Completion/Placement Rates

Reporting Period: 04/01/2011 – 06/30/2016

Course Title	Completion	**Placement
(1A) Electronics Technology w/FCC License Prep	21%	N/A
(1B) Electronics Technology w/Lab	39%	N/A
*(1C) Computer Programming w/ Java and C#	16%	N/A
(2) Broadcast Engineering	28%	N/A
*(2C) A+ Certification and Computer Technology	37%	N/A
*(3C) Network+ Certification and Computer Technology	45%	N/A
(4) Wireless and Electronic Communication	26%	N/A
*(4C) Intro to Computers and Microsoft Office	27%	N/A
(5) Industrial Electronics with PLC Technology	22%	N/A
(5B) Automation with Robotics with Lab	17%	N/A
*(5C) Intro to Home Automation Installation	55%	N/A
(6) Electronics Engineering	23%	N/A
*(6C) Computer Security Specialist	23%	N/A
(7C) IT Security	***N/A	N/A
*(8C) Intro to Game Development and Mobile Apps	***N/A	N/A
(11) Electronics Technology and Advanced Troubleshooting	37%	N/A
(14B) Electronics Technology w/Digital & Microprocessor Labs	16%	N/A

*All of CIE's courses, except 1C, 2C, 3C, 4C, 5B, 5C, 6C & 8C are longer than a year.

**CIE is a telecommunications school; the majority of its student population is already employed. CIE does not have a placement office, therefore does not offer/advertise placement assistance.

***N/A – No enrollments for this period.

Mission Statement and Institutional Objectives and Goals

The mission of Cleveland Institute of Electronics (CIE) is to develop and deliver quality distance education programs at a reasonable cost by offering diploma-programs in the areas of electronics engineering and computer technology. CIE is committed to academic excellence and to the educational welfare of each of its students as we are a student-centered institution known since 1934 to meet or exceed the needs of its students.

The institutional objectives and goals of Cleveland Institute of Electronics for each student are to:

- 1) Provide the student with one-on-one instruction from a distinguished Faculty with nationally recognized credentials in the fields of Business Administration, Computer Science and Engineering.
- 2) Provide technology that supports and preserves the academic program and increases the effectiveness of the educational services.
- 3) Provide an educational delivery method that is flexible, productive and cost-effective.
- 4) Provide administrative support that reinforces and preserves academic and financial resources necessary to enable students to meet their educational objectives and professional goals.
- 5) Provide exemplary admissions, course enrollment, and student record-keeping services, and demonstrate a commitment to helping students and faculty in a friendly and timely manner.
- 6) Provide an increased ability to research and solve problems independently.
- 7) Provide recognition of the proper relationship of basic principles to the changing techniques used to implement them.
- 8) Achieve positions of increased responsibility within an organization through effective communication and critical thinking skills.
- 9) Progress through advanced degree or certificate programs or participate in continuing education in engineering, business, and/ or other professionally related fields.
- 10) Function as an outstanding citizen in their communities.

Grading System

CIE uses the numerical grading system for all career courses because our instructors believe it is the fairest, most helpful way to show your progress. The minimum passing grade is 70%. If you do not receive a passing grade on an examination, you will be required to review the lesson and those questions you answered incorrectly, and then re-submit the exam for that lesson. (In computing your grade average at any given time, a grade of 70% will be used on exams which have been re-submitted, regardless of final passing score.)

CIE Grading Rubric

As the majority of the examinations are multiple-choice type questions, the grading rubric is based on the number of correct questions divided by the total number of questions times 100 to show a grade percentage to the students.

As an example:

The examination has 30 questions and the number missed was 3 questions. The number of correct questions was 27 and this is divided by 30 then multiplied by 100 to give a percentage score of 90%.

CIE's grading scale is:

Grade		
93 to 100	A	Excellent
86 to 92.9	B	Good
78 to 85.9	C	Average
70 to 77.9	D	Below Average
< 69	F	Not Passing

The four-level Holistic Critical Thinking Rubric is utilized to assess the critical thinking skills that have been demonstrated by students in essays, projects, or programming exercises.

100 – 90% (4) Consistently does all or almost all of the following:

- Accurately interprets evidence, statements, graphics & questions.
- Identifies the salient arguments (reasons and claims) pro & con.
- Thoughtfully analyzes & evaluates major alternative points of view.
- Develops & draws warranted, judicious, non-fallacious conclusions.
- Justifies key results and procedures, explains assumptions and reasons.
- Fair-mindedly follows where evidence and reasons lead.

89 – 80% (3) Does most or many of the following:

- Accurately interprets evidence, statements, graphics & questions.
- Identifies relevant arguments (reasons and claims) pro and con.
- Offers analyses & evaluations of obvious alternative points of view.
- Justifies some results or procedures, explains reasons.
- Fair mindedly follows where evidence and reasons lead.

79 – 70% (2) Does most or many of the following:

- Misinterprets evidence, statements, graphics, questions, etc.
- Fails to identify strong, relevant counter-arguments.
- Ignores or superficially evaluates obvious alternative points of view.
- Justifies few results or procedures, seldom explains reasons.
- Regardless of the evidence or reasons maintains or defends views based on self-interest or preconceptions.

Scored as 69% (1) Consistently does all or almost all of the following:

- Offers biased interpretations of evidence, statements, graphics, questions, information, or the points of view of others.
- Fails to identify or hastily dismisses strong, relevant counter-arguments.
- Ignores or superficially evaluates obvious alternative points of view.
- Argues using fallacious or irrelevant reasons, and unwarranted claims.
- Regardless of the evidence or reasons, maintains or defends views based on self-interest or preconceptions.
- Exhibits close-mindedness or hostility to reason.

A Code of Conduct for the Distance Education Student

As a student of a distance education institution, you will need to observe fully the standards, rules, policies, and guidelines established by this institution, the Ohio State Board of Career Colleges and Schools, and any other appropriate organization serving an oversight role for this institution.

We ask you to adhere to high ethical standards in the pursuit of your education, and to the best of your ability:

1. Conduct yourself with professionalism, courtesy and respect for others in all of your dealings with the institution staff, faculty and other students.
2. Present your qualifications and background truthfully and accurately for admission to the institution.
3. Observe the institutional policies and rules on submitting work, taking examinations, participating in online discussions and conducting research.
4. Never turn in work that is not your own, or present another person's ideas or scholarships as your own.
5. Never ask for, receive, or give unauthorized help on graded assignments, quizzes and examinations.
6. Never use outside books or papers that are unauthorized by your instructor's assignments or examinations.
7. Never divulge the content of or answers to quizzes or examinations to fellow students.
8. Never improperly use, destroy, forge or alter your institution's documents, transcripts, or other records.
9. (When applicable) Never divulge my online username or password.
10. Always observe the recommended study schedule for your program of studies.
11. Always report any violations of this Code of Conduct to the appropriate institution official, and report any evidence of cheating, plagiarism or improper conduct on the part of any student of the institution when you have direct knowledge of these activities.

Proctor Policy

CIE requires that at least one exam, typically the final exam, be taken under the supervision of a proctor for each course.

You are expected to submit to the Institute for approval the name of a proctor and their contact information.

A proctor should be a member of your community that holds a position of integrity, such as a workplace supervisor, a librarian, teacher, minister, rabbi, law enforcement officer, etc.

Restrictions Regarding Designation of Exam Proctor:

1. The proctor must be at least 18 years old
2. The proctor must not be a friend, family member, or anyone related to you by blood or marriage
3. The proctor must not be currently enrolled at CIE
4. The proctor must not reside in the same household as you
5. The proctor must not be a colleague whose work you supervise

Plagiarism/Cheating

Cleveland Institute of Electronics takes pride in the integrity of its instructional programs and the established standards for academic excellence.

Any violation of these principles will not be tolerated. Distance Learning students are expected to follow the same ethical practices required in traditional learning settings. Any deviation may be considered grounds for terminating enrollment.

Behaviors considered to be unacceptable at CIE are

(1) cheating during examinations; (2) changing already graded work; (3) either soliciting a student to impersonate another by sitting for an exam; or (4) sitting for an exam in the name of another student; or (5) submitting any materials to CIE that are not the original and unchanged materials of the student.

Cleveland Institute of Electronics adheres to the commonly accepted definition of plagiarism as the action of representing another's words or ideas as one's own without making reference to the original author.

If it is determined by the instructors, another member of the faculty, or a CIE staff member that plagiarism or cheating is suspected, the Dean of Instruction will review the case with the Education Committee and make the final determination if the student will receive credit or not for the course or project in which the offense occurred.

If plagiarism or cheating recurs, the student's enrollment at Cleveland Institute of Electronics may be terminated.

Procedures for Violations of Student Code of Conduct and Plagiarism/Cheating

Once notice of a violation of the student code of conduct and/or plagiarism/cheating has been submitted to the Dean of Instruction, an investigation will be conducted to determine if there is substantial evidence.

Dependent on the findings, a decision will be made by the Dean of Instruction and the Education Committee as to a student's (a) loss of credit or (b) termination of enrollment from CIE.

Students will be notified in writing of the disciplinary decision and informed that this decision is binding. Students have the right to petition the Dean of Instruction for a stay of dismissal. The Education Committee will review each petition.

Privacy Policy/FERPA

Confidentiality of Student Records

CIE abides by the provisions of the Family Educational Rights and Privacy Act (FERPA). Under this act, education records of a student are released only with written consent and request from the eligible student, or in accordance with the law, to authorized agencies outside the college.

Student Identity Verification

Before an approved proctor can administer an exam, the student must provide a photo ID to verify their identity.

Frequently Asked Questions...

Which course should I choose?

If you are a beginner in electronics, you have two options:

A. You can enroll in Course 1B first. It is a lab course and is designed to teach you theory and to give you the skills required of an electronics technician. Upon completion of 1B you can then re-enroll into any of CIE's other lab courses and receive 100% credit for all the work you did in Course 1B.

B. If you are sure you want to get a diploma from a more advanced course, you can enroll in that course from the start. You can enroll in 14B without taking course 1B first. This is a faster route to the advanced diploma.

If you have an interest in computer technology or computer programming you should enroll in either Course 1C, 2C, 3C, 4C, 6C, 7C or 8C. They are designed for the beginner as well as the seasoned pro.

Are CIE's credits transferrable?

Transfer credit from CIE to another educational institution is entirely at the discretion of the receiving institution, and CIE does not guarantee complete transfer of credits.

What if I need a course extension?

If you have a legitimate medical or personal reason that prevents you from studying for a period, CIE may be able to extend your course for a nominal fee. Such extensions are solely at CIE's discretion.

What will CIE's courses give me?

Most employers are looking for someone they can train on their equipment. They expect you to know the principles and have the skills of a technician when they hire you. That's what CIE courses are intended to give you.

What are the technology requirements for CIE's courses?

Your lab equipment, study guides and other materials needed to complete our program are included with your tuition. Students should have access to the internet to take their exams, join the chat room and watch CIE videos.

Students are responsible for purchasing textbooks for courses that require a textbook.

Will I need to buy textbooks?

Students who enroll in courses 1C, 2, 2C, 3C, 4, 4C, 5, 5B, 6C, 7C, 8C or 14B are responsible for purchasing a limited number of textbooks that are not included with tuition. Please call a Admissions Advisor at 1-800-243-6446 for the current list of textbooks or visit www.cie-wc.edu/textbook_prices.asp.

Can I upgrade my equipment?

The equipment that comes with all CIE lab courses is of good quality and is sufficient for the work done in the experiments. For students who prefer instruments with upgraded specifications, these are available through the CIE Bookstore.

Are there prerequisites for CIE's courses?

If you intend to enroll in Course 2, 4, or 5, we recommend that you have some previous training in electronics. If you do not have any previous training, we recommend, but do not require, that you first take course 1B.

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**If you have other questions or wish to enroll in a CIE program call
1-800-243-6446
www.cie-wc.edu**

Bringing Technology Home.

WE'RE HERE TO HELP YOU!

CIE prepares its students to become skilled technicians and engineering technologists who will solve the electronic engineering and computer problems of tomorrow. In order to accomplish these goals, the college retains a staff of highly trained admissions advisors, similar to a traditional school. CIE advisors are here to help you decide on a career path that is right for you. They will be more than happy to assist you with any questions you may have regarding CIE.

Some of the most frequently asked questions by prospective students are answered on page 39 of this catalog. However, you may have your own questions that are unique to your situation. Please call our admissions advisors at 1-800-243-6446 and they will be able to talk with you at length about your specific career training goals. Since a catalog may not provide all the answers to questions you may have, this individualized help from an experienced advisor may be what you need to get started on the right career path.

2 NEW COURSES!

- **Introduction to Game Development and Mobile Apps** (pages 18-19)
- **IT Security** (pages 26-27)



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A SCHOOL OF THOUSANDS. A CLASS OF ONE. SINCE 1934.