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

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.
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 18. 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 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.

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.

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.

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.

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 make membership available to an honor society and professional associations... and exam grading is available online through e-grade.

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.

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).
Enroll on-line at www.cie-wc.edu or call 800-243-6446

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

LESONS
- 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
- 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
- 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
- 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 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 2, 4, and 5 also include the 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.

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.

LESIONS

• First 36 lessons from Course 1B (see page 6)
• 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, Clamps 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 7.
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 7)
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 7.)

LESSONS

- 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
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 7)
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

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 to 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 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
Learn to Master the Following Topics:

- Solving Linear Equations
- Digital Switching Units
- Solid State Design
- AC Circuit 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
- Natural Logarithms
- Satellite Communications
- Digital Communications
- Antennas
- 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 7)
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

LESSONS

- All lessons from Course 1B (see page 6)
- 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
- 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
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!
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

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 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
- 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
IT Security

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 includes lessons on **Firewalls and VPns, Security Policies, 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 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
- Install and implement VPns
- Identify and defend against virus attacks, cyber terrorism, industrial espionage and more
- Design Firewalls
- Network Forensics
- 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
Enrollment

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.

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.

Entrance Requirements
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 23 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.
Refund Policy

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

1. 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 the student is tuition obligation will be a registration fee of the lesser of 15% of tuition or $125.00, plus a portion of the remaining term tuition as defined below:

   - Percentage of Course Lessons Completed
     - 15% or less: Amount of Refundable Tuition Obligated
       - 25% of term tuition
     - Between 16% - 25%: Amount of Refundable Tuition Obligated
       - 50% of term tuition
     - Between 26% - 40%: Amount of Refundable Tuition Obligated
       - 75% of term tuition
     - Over 40%: Obligated for full tuition

3. Any student who fails to complete a lesson within 60 days of enrollment or any 60 day period after enrollment will be automatically withdrawn from CIE and obligated for a registration fee and percentage of tuition as shown above in Paragraph 2.

CIE may charge for any equipment and/or unserviced lessons.

Textbook Fees

Students who enroll in courses 2, 2C, 4, 5, 5B, 7C 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.
The People Behind The Programs

Governing Body & Officers

John D. Drinko (In memory.)
Chairman of the Board of Directors
A.B. Marshall University
J.D. The Ohio State University
Doctor of Law (Honorary)
Marshall University
Doctor of Law (Honorary)
The Ohio State University
Doctor of Law (Honorary)
John Carroll University
Doctor of Law (Honorary)
Cleveland State University
Doctor of Law (Honorary) Myers College
Doctor of Law (Honorary)
Baldwin-Wallace College
Doctor of Law (Honorary)
Ursuline College

Carl E. Smith (In memory.)
Founder
B.S.E.E. Iowa State University
M.S.E.E. The Ohio State University
P.E. Licensed Professional Engineer
(Ohio and District of Columbia)

John Randall Drinko
President and Chief Executive Officer
B.S. The Ohio State University

Paul Valvoda
Treasurer
B.A. The Ohio State University

Anne M. Torma (In memory.)
Vice President Emeritus
B.B.S. University of Budapest, Hungary

Teaching Authors & Contributors

Margaret Allen
B.A. Marygrove College
M.A. Boston College
Ph.D. University of Michigan

James G. Arcaro CET/CSM
A.A.S. Lakeland Community College
License, FCC General Class
Radiotelephone Operator

Irvin Bingham
B.S.E.E. Case Institute of Technology

Phillip Blumenthal
B.S.E.E. Case Institute of Technology

Roy E. Christen
B.S. Bowling Green State University
B.S.E. The Ohio State University
M.S.E.E. The Ohio State University

R. H. Coddington
B.S. Carnegie Institute of Technology
License, FCC General Class Radiotelephone Operator

* Keith Conn
M.S.Ed Lake Erie College
B.S.E.E. Cook's Institute of Electronic Engineering
A.A.S.E.E.T. University of Akron
M.E.M. California National University for Advanced Studies

Bruce Coscia
MBA/TM University of Phoenix
BEET ETI Technical College
ASEET Electronic Technology Institute
A+, Network+, MCP, MCDST, IC3

Donald Davenport
Diploma, Cleveland Institute of Electronics

Clarence David
B.S.E.E. Wayne State University

Joseph DeFrance
B.S.E.E. City College of New York
B.S. City College of New York

Alan A. Ernhart
B.S.E.E. Case Western Reserve University

James R. Folkman
B.S.E.E. Cleveland State University

Darrell L. Geiger
Diploma, Capitol Radio Engineering Institute
License, FCC General Class Radiotelephone Operator

Sara Glick
A.B. Oberlin College

Charles Green
B.S.E.E. Case Institute of Technology

A. K. Guthrie
Diploma, Valparaiso Technical Institute
License, FCC General Class Radiotelephone Operator

Herbert N. Hall
B.S.E.E. Cleveland State University
Diploma, Pennsylvania Technical Institute
License, FCC General Class Radiotelephone Operator

Thomas Haskett
B.S.E.E. University of Cincinnati
M.S.E.E. University of Cincinnati
License, FCC General Class Radiotelephone Operator

John W. Havrilla
B.S. Pennsylvania State University
M.Ed. Indiana University of Pennsylvania
M.A. Indiana University of Pennsylvania

Dwight S. Heim
B.S. University of Michigan
A.M. University of Michigan
Ph.D. University of Michigan

John F. Hemdal
B.S. Purdue University
M.S. Purdue University
Ph.D. Purdue University
P.E. Licensed Professional Engineer (Michigan)

Joseph Hunter
B.S. Catholic University of America
M.S. Catholic University of America
Ph.D. Catholic University of America

Basil Loannou
B.S.E.E. Cleveland State University
P.E. Licensed Professional Engineer (Ohio & Connecticut)

Frederick Jacobson
License, FCC General Class Radiotelephone Operator

David Johnson
B.S.E.E. University of Kentucky
M.S.E.E. University of Kentucky

Edwin A. Johnson
A.A.S. Milwaukee School of Engineering

Doris E. Kittendorf
B.S. Eastern Michigan University
M.A. University of Michigan
Ph.D. University of Michigan

Phillip J. Korwek
B.S. Wayne State University
M.S.E. University of Michigan

Mary G. LaRoche
A.B. Radcliffe College
Ph.D. University of Michigan

Gladys G. Leithauser
B.S. Wayne State University
M.A. Wayne State University
Ph.D. Wayne State University

Enroll on-line at www.cie-wc.edu or call 800-243-6446
<table>
<thead>
<tr>
<th>Name</th>
<th>Degree(s)</th>
<th>Institution(s)</th>
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<tbody>
<tr>
<td>Wayne Lemons</td>
<td>Diploma, Cleveland Institute of Electronics</td>
<td></td>
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<tr>
<td>Barnaby A. Linet</td>
<td>B.A. Case Western Reserve University</td>
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<tr>
<td>Edward A. Ludwig</td>
<td>A.S.E.T. North Central State College</td>
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<tr>
<td>Richard Malinowski</td>
<td>Diploma, Cleveland Institute of Electronics License, FCC General Class</td>
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<tr>
<td>John Manton</td>
<td>B.S. University of Pittsburgh M.S. University of Pittsburgh</td>
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<tr>
<td>Albert McHenry</td>
<td>B.S.E.T. Southern University M.S.E.T. Arizona State University Ph.D. Arizona State University</td>
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<tr>
<td>J. Michael McMenamin</td>
<td>B.S.E.E. University of Michigan M.S. Adelphi University P.E. Licensed Professional Engineer (Michigan)</td>
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<tr>
<td>Francis L. Merat</td>
<td>B.S.E.E. Case Institute of Technology M.S.E.E. Case Western Reserve University Ph.D. Case Western Reserve University</td>
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<tr>
<td>Paul Meruzzi</td>
<td>B.S.E.E. Northwestern University M.S. Case Western Reserve University Ph.D. Case Western Reserve University</td>
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<tr>
<td>Thomas O. Miller</td>
<td>Certified Professional Broadcast Engineer Society of Broadcast Engineers License, FCC General Class Radiotelephone Operator</td>
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<tr>
<td>Mangala E. Morey</td>
<td>B.S.E.E. Case Western Reserve University</td>
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<tr>
<td>Charles Morgan</td>
<td>License, FCC General Class Radiotelephone Operator</td>
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<tr>
<td>Lawrence A. O’Donnell</td>
<td>B.S. John Carroll University</td>
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<tr>
<td>Jerome E. Oleksy</td>
<td>B.S. John Carroll University M.S.E.E. CCU P.E. Licensed Professional Engineer (Ohio)</td>
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<tr>
<td>William Osterheld</td>
<td>B.S.E.E. Newark College of Engineering M.A. New York University</td>
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<tr>
<td>Sheryl S. Pearson</td>
<td>B.A. University of Texas M.A. University of Michigan Ph.D. University of Michigan</td>
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<tr>
<td>Edward M. Prentke</td>
<td>B.S.E.E. Case School of Applied Science</td>
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<tr>
<td>Jack M. Rappporport</td>
<td>B.E.E. City College of New York</td>
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<tr>
<td>Gary Rathbun</td>
<td>B.S.C.I.S. Cleveland State University B.S. Electrical Engineering Cleveland State University</td>
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<tr>
<td>James J. Rogers</td>
<td>B.S.E.E. Case Western Reserve University</td>
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<tr>
<td>Louis Roemer</td>
<td>B.S. Delaware University M.S.E.E. Delaware University Ph.D. Delaware University</td>
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<tr>
<td>Kenneth R. Rosenow</td>
<td>Diploma, Cleveland Institute of Electronics License, FCC General Class Radiotelephone Operator</td>
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<tr>
<td>Winn Rosch</td>
<td>B.A. Cleveland State University License, FCC General Class Radiotelephone Operator</td>
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<tr>
<td>Charles Rubenstein</td>
<td>B.S.E.E. New York University M.S.E.E. New York University P.E. Licensed Professional Engineer (Ohio)</td>
<td></td>
</tr>
<tr>
<td>Albert P. Sheppard</td>
<td>B.S. Oglethorpe University M.S. Emory University Ph.D. Duke University P.E. Licensed Professional Engineer (Georgia)</td>
<td></td>
</tr>
<tr>
<td>Joseph G. Sloop</td>
<td>B.S. Western Carolina University M.A. Appalachian State University C.E.T. International Society of Certified Electronics Technicians</td>
<td></td>
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<tr>
<td>Stephen J. Simicic</td>
<td>B.S.E.E. Case Institute of Technology P.E. Licensed Professional Engineer (Ohio)</td>
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<tr>
<td>Morris Slurzberg</td>
<td>B.S.E.E. Newark College of Engineering M.A. New York University</td>
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<tr>
<td>Carl E. Smith</td>
<td>B.S.E.E. Iowa State University M.S.E.E. The Ohio State University P.E.E. The Ohio State University Licensed Professional Engineer (Ohio &amp; District of Columbia)</td>
<td></td>
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<tr>
<td>Melvin Sprinkle</td>
<td>B.S. Shepherd College P.E. Licensed Professional Engineer (Maryland, New Jersey, and District of Columbia)</td>
<td></td>
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<tr>
<td>Jack W. Streater</td>
<td>B.S.E.E. Drexel University M.B.A. Drexel University</td>
<td></td>
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<tr>
<td>Joseph E. Sullivan</td>
<td>B.S.E.E. Purdue University M.S. University of Michigan-Dearborn P.E. Licensed Professional Engineer (Michigan)</td>
<td></td>
</tr>
<tr>
<td>Margaret R. Tabor</td>
<td>B.S.E.E. Cleveland State University B.S.E.S. Cleveland State University M.S. University of Akron Ed.D. Nova University P.E. Licensed Professional Engineer (Ohio)</td>
<td></td>
</tr>
<tr>
<td>Randall D. Thacker</td>
<td>Diploma, Cleveland Institute of Electronics A.S.E.T. Cuyahoga Community College B.S.E.T. Arizona State University License, FCC General Class Radiotelephone Operator</td>
<td></td>
</tr>
<tr>
<td>John Timar, Jr.</td>
<td>A.A.S. DeVry Technical Institute License, FCC General Class Radiotelephone Operator</td>
<td></td>
</tr>
<tr>
<td>James L. Tonne</td>
<td>Diploma, Cleveland Institute of Electronics License, FCC General Class Radiotelephone Operator</td>
<td></td>
</tr>
<tr>
<td>Daniel Tuma</td>
<td>B.S. Electronic Technology Eastern Kentucky University M.S. Electronics and Computer Technology Indiana State University M.S.E.E. Cleveland State University M.S.I.E. Cleveland State University Ph.D. Electrical Engineering Cleveland State University</td>
<td></td>
</tr>
<tr>
<td>Robert Ulmer</td>
<td>B.S.E.E. Case Institute of Technology M.S.E.E. Case Institute of Technology M.S. Case Western Reserve University P.E. Licensed Professional Engineer (Ohio)</td>
<td></td>
</tr>
<tr>
<td>Vasil Uzunoglu</td>
<td>M.S.E.E. University of Missouri</td>
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<tr>
<td>*Dennis Vargo</td>
<td>AAB Lakeland Community College BCIS World College</td>
<td></td>
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<tr>
<td>Robert Wiese</td>
<td>B.S.E.T. Cleveland State University</td>
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<tr>
<td>J. A. Sam Wilson</td>
<td>B.A. Long Beach State College M.A. Kent State University</td>
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<tr>
<td>Glenn Winter</td>
<td>B.S.E.E. York College of Pennsylvania P.E. Licensed Professional Engineer (Pennsylvania)</td>
<td></td>
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<tr>
<td>Frank P. Yatsko</td>
<td>B.S.E.E. Lehigh University P.E. Licensed Professional Engineer(Pennsylvania)</td>
<td></td>
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<tr>
<td>Christopher C. Yewell</td>
<td>B.A. Cleveland State University A.A.S. Cleveland Institute of Electronics</td>
<td></td>
</tr>
<tr>
<td>Scott C. Young</td>
<td>B.S. Computer Science and Engineering Technology University of Toledo A+ Certified</td>
<td></td>
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<tr>
<td>Ronald M. Zeldman</td>
<td>Diploma, Cleveland Institute of Electronics License, FCC General Class Radiotelephone Operator</td>
<td></td>
</tr>
<tr>
<td>Edward T. Zupan</td>
<td>A.S.E.T. Electronic Technology Institute B.S.E.T. Cleveland State University</td>
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</table>

(Note: * designates Instructional Staff Member)
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+ 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.
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: 04/01/2013 – 06/30/2019

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Completion</th>
<th>*Placement</th>
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<tbody>
<tr>
<td>(1B) Electronics Technology w/Lab</td>
<td>19%</td>
<td>N/A</td>
</tr>
<tr>
<td>(2) Broadcast Engineering</td>
<td>12%</td>
<td>N/A</td>
</tr>
<tr>
<td>(2C) A+ Certification and Computer Technology</td>
<td>22%</td>
<td>N/A</td>
</tr>
<tr>
<td>(4) Wireless and Electronic Communication</td>
<td>11%</td>
<td>N/A</td>
</tr>
<tr>
<td>(5) Industrial Electronics with PLC Technology</td>
<td>19%</td>
<td>N/A</td>
</tr>
<tr>
<td>(5B) Automation with Robotics with Lab</td>
<td>14%</td>
<td>N/A</td>
</tr>
<tr>
<td>(6) Electronics Engineering</td>
<td>7%</td>
<td>N/A</td>
</tr>
<tr>
<td>(7C) IT Security</td>
<td>20%</td>
<td>N/A</td>
</tr>
<tr>
<td>(14B) Electronics Technology w/Digital &amp; Microprocessor Labs</td>
<td>17%</td>
<td>N/A</td>
</tr>
</tbody>
</table>

All of CIE’s courses are longer than a year except for 2C & 5B.
*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.
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:

<table>
<thead>
<tr>
<th>Grade</th>
<th>%</th>
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<tbody>
<tr>
<td>93 to 100</td>
<td>A</td>
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<tr>
<td>86 to 92.9</td>
<td>B</td>
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<tr>
<td>78 to 85.9</td>
<td>C</td>
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<tr>
<td>70 to 77.9</td>
<td>D</td>
</tr>
<tr>
<td>&lt; 69</td>
<td>F</td>
</tr>
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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 you should enroll in either Course 2C or 7C. 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.

Student leave - 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 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 2, 2C, 4, 5, 5B, 7C 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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Administrators
John Randall Drinko: President and Chief Executive Officer
Paul Valvoda: Treasurer
Marites Capistrano: Licensing
Ted Sheroke: Marketing Manager

If you have other questions or wish to enroll in a CIE program call 1-800-243-6446 www.cie-wc.edu
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 29 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.