Dear Certification Seeker,

Today, electronics is one of the fastest growing industries. We have come a long way from vacuum tubes and mechanical switches. ETA® International has remained committed to serving technicians and modeling certification programs to keep pace with emerging technologies.

ETA offers a career path that ranges from students with little or no experience to a master level for those who have dedicated several years to improving and expanding their skill sets. ETA International’s certifications are important for both individuals and business organizations.

For an individual, certifications:
- are a quantifiable milestone of achievement
- are a way to benchmark skills sets
- link competency to compensation
- enable advancement or flexibility in conditions of job change or advancement
- create industry visibility of one of the highly recognized electronics certifications
- are personal and portable certifications
- show levels of certification progression and disciplines to continued skills development
- are proof of mastery of the technologies in the industry

For a business/organization, certifications:
- show workmanship that results in both internal and external customer satisfaction
- enhance credibility within the organization and with external customers
- identify employees who are qualified to provide leadership to team members
- maximize investment by accurately determining individual and organizational training needs
- support decisions of appropriate skill level when hiring or promoting
- support employee retention plans - present new challenges and career path choices to employees
- provide the company with confidence that contracted vendors are technically qualified

For a school/training facility, certifications:
- increase curriculum value by providing industry-recognized credentials
- increase marketability of programs
- provide end of course assessments
- satisfy Perkins and other federal requirements
- allow participating states to give students verified credits

ETA distinguishes itself from other associations by being an organization primarily composed of individuals. ETA is comprised of technicians from every conceivable area of electronics, communications, and technology. The interchange of information and the broad viewpoints that members are exposed to creates a unique and valuable entity.

The intent of ETA is to Connect (leaders in our industry); Innovate (through networking and discussions); and Evolve (initiatives that revitalize and strengthen our industry). This information booklet will help move you forward in your industry through certifications.

Sincerely,

Teresa Maher, CSS, KD9DCV
President
History

ETA® International (Electronics Technicians Association, International) founded in 1978, is a not-for-profit, professional association promoting excellence in electronics technologies through certification.

The association’s initiatives are to provide prominent certification programs of competency criteria and testing benchmarks that include international electronics standards and provide renowned professional electronics credentials.

The organization began with leaders like Richard “Dick” Glass, CETsr, Ron Crow, CETma, D.C. “Snow” Larson, CET and others who had earned much respect in the electronics industry. In the late 1970s, the founders decided never to affiliate too closely with any manufacturer. ETA was to be truly a group of technicians by technicians for technicians. Today, ETA is a strong and well-known organization with over 5,000 members and over 200,000 certifications and licenses delivered to date. ETA’s focus is to help new and upcoming technicians and the technical schools they attend achieve their career goals.

Although certification, specifically, was not an original goal, it occurred naturally as ETA grew. As a non-vendor-specific, independent third-party certifying organization, ETA receives inquiries each month from schools asking for assistance in either recommending and/or certifying curriculums or texts. In addition, the U.S. military, through their individual education offices, has an agreement with ETA for both CET and FCC Commercial License testing at all U.S. military facilities worldwide.

ETA is not only strong in the certification field, but it provides many other services for technicians and electronics service firms. ETA has participated in governmental law and rule-making by commenting on behalf of technicians regarding pending local, state, or national actions of governments. The association works closely with other organizations such as the Army, Navy, Marine Corps, and Air Force COOL programs, National Technical Honor Society (NTHS), U.S. Department of Labor’s Career One Stop, the FCC, and Certified Service Centers as well as other local, state, national, and international groups.

While ETA membership is also available to service dealerships and other institutions, the typical member is an electronics technician. By having a membership composed of technicians from every conceivable area of electronics, communications and networking technology, the interchange of information and the broad viewpoint members are exposed to creates a unique and valuable entity.

Hundreds of members have taken an active role in the association by participating as area representatives, becoming certification administrators, writing for the publications and journals or by teaching a class at seminars and conventions. ETA is not just an association that collects your dues and then issues an occasional report. It is a fellowship of technicians who love their jobs and see ETA as the adhesive that binds real professional technicians together for the greater good.

Benefits of ETA Certification

ETA certification signifies that the holder has demonstrated professional proficiency and has the technical knowledge and hands-on skills to meet international electronics industry standards.

Earning an ETA certification:

• Gives U.S. Armed Forces personnel validation of their Military Occupational Skill (MOS) training for meeting active duty responsibilities and transitioning to civilian careers as veterans
• Allows high school and postsecondary students, as well as working adults seeking new employment opportunities, to demonstrate and validate their technical electronics knowledge and skill with recognized industry credentials
• Assists experienced industry professionals in advancing their knowledge and excelling in their careers
• Provides employers with clear criteria for hiring and promotion that can lead to enhanced productivity and customer satisfaction.

ETA certification exams are administered by ETA Certification Administrators, which ensures quality control. ETA testing sites are easily accessible with over 1,000 exam administrators at colleges, businesses, trade schools, and military bases worldwide.
Industry-Recognized Standards

An ETA certification signifies that the holder demonstrates professional proficiency within a certain discipline. Certification holders are recognized as having the necessary knowledge and technical skill to design, install, service, or repair electronic equipment according to industry standards—not specific to a manufacturer, vendor, or product.

Since 1965, the program has been proven effective. Aligning with the ISO 17024 standard, and collaborating with education providers and industry professionals, ETA provides the criteria which tests the knowledge and/or hands-on skills needed in today’s electronics industries. However, ETA constantly seeks information from employers, schools, and individuals verifying the validity and current relevance of its assessments.

Accreditation:
ETA’s industry-based examinations are modeled after international competency standards. Each discipline utilizes its own group of educators and practitioners, plus industry-wide reviews, to align with the industry standards. The standards clearly articulate the skills and knowledge relevant to specific segments of the industry. ETA certifications are personal, portable worldwide, and are accredited by the International Certification Accreditation Council (ICAC). ICAC is an alliance of organizations dedicated to assuring competency, professional management, and service to the public by encouraging and setting standards for licensing, certification, and credentialing programs.

About ICAC

In 1996, a group of association executives chartered the ICAC as a not-for-profit organization with the purpose of evaluating certification programs at an affordable rate that smaller organizations can afford. Over the years, the ICAC has developed a comprehensive process to evaluate certification programs against international standards. In this way, accredited organizations can both improve existing certification programs as well as demonstrate to the public that their programs comply with industry best practices.

By accrediting certification programs, the public and the industries represented have an additional level of assurance, knowing that the program has been reviewed by a neutral third party and been found to meet or exceed reasonable levels of record keeping, security, objectivity, and professionalism.

The ICAC itself operates under the international guidelines established as a quality assurance regime for accreditation bodies (ISO/IEC 17011 – Conformity Assessment: General Requirements for Accreditation Bodies Accrediting Conformity Assessment Bodies), and has established assessment tools and processes that assure certification bodies are in compliance with ISO/IEC 17024 (2012): Conformity Assessment – General Requirements for Bodies Operating Certification of Persons.

Who Takes ETA Exams?

ETA certifies professionals from many different areas and industries. Whether it’s a military fiber installer, biomedical technician, service manager, or student, ETA has you covered! Every year ETA creates a snapshot of professionals and students who have taken an ETA exam during the previous year. You can see the results from 2015 on the right.

ETA certifications are listed on the Career One Stop website. Career One Stop is sponsored by the U.S. Department of Labor, and is a partner of the American Job Center network. The website provides tools to help job seekers, students, businesses, and career professionals find their pathway to success. Please visit www.careeronestop.org for more information.
About ETA

Certification Administrators

ETA believes that legitimate third parties, such as experts, practitioners, and instructors in the field, rather than those who may have a direct interest in the outcome of the programs, should administer and approve certified electronics technicians exams. ETA serves as that third party administrator to technical education, providing a way for school systems to validate their electronics courses.

ETA continually strives to make its exam testing sites easily accessible for examinees who wish to take one of the more than 80 different ETA certification exams. We currently have 1,000 exam administrators at college electronics programs, community colleges, trade schools, military bases, proprietary trainers, and vocational-technical schools throughout the world. If your accredited institution/school or training facility is interested in becoming an ETA-approved examination site, please complete the Certification Administrator application. Print a copy of the agreement form for your records and email an additional copy of each form to us at eta@eta-i.org.

Authorization to administer ETA certification exams is given to the individual. By gaining approval from ETA’s President, a Certification Administrator’s location is listed for the public to contact using the CA Locator. CAs are given the option to have their location listed or remain private. Upon approval, a CA may proctor all ETA certification exams that do not require hands-on skills assessments and FCC commercial operator licensing exams.

Course Approvals

Approval of training for technicians is not something that should be done solely by educators who work mostly with the theoretical side of the field being critiqued. It should also not be done by those with a direct interest in the course providers. It should be done by a legitimate third party - composed of experts in the field; practitioners and educators at all levels. ETA has a network of more than 600 Subject Matter Experts (SMEs) in place to assist with course and text reviews. ETA’s Subject Matter Experts span all of the fields of certification available through ETA.

Today, with many governmental agencies (at all levels) looking to validate their educational processes, the need for recognition has become a mandate. Some states now use ETA certification as 3rd party final exams for electronics course students, but the process is not yet complete. A more formal program of validation is still needed. School systems are requiring the educational institutions to prove that their training actually is giving the student his or her money’s worth. They want proof that the time and money spent in learning this profession will pay off with a good career after graduation.

ETA has instituted a program to answer this call for help. We currently have over 1,000 Certification Administrators along with our 600 Subject Matter Experts. Because of this extensive network, ETA is in a position of being accountable to industry for reliable test results. ETA serves in its capacity as a 3rd party to technical education, providing a way for school systems to validate their courses. ETA is meeting these industry and educational needs.

ETA provides third-party reviews that many schools require of electronics courses, evaluating the instructor credentials, lab and classroom equipment, course outlines, etc. The reviews have been used by all levels of education, both public and commercial, as well as military.

State Representatives

ETA has both state and national representatives who promote ETA within their community. We are always looking for new members to apply. Holding the title of state and/or national representative includes duties such as promoting ETA; contacting ETA with any local developments reported by the industry or in the education of electronics related fields; offering clarification, when a situation arises in the area, and providing further details; for example, a licensing requirement or change; reaching out to local schools or businesses with ETA material; visiting a school or business which has shown interest in ETA; being available to attend a show or event, including a career day or job fair.
ETA Certification Administration

ETA has over 1,000 certification administrators (CAs) around the world. Each examination must be proctored by a CA. To find a CA, either visit the ETA website or call ETA. If a test site is not near the examinee’s location, then please call ETA at (765) 653-8262, or email at eta@eta-i.org for more information. All ETA exams must be proctored by an independent third party.

ETA Examination Materials

ETA aligns with individual professional goals, vocational and education curriculums, and businesses’ resource initiatives through certification programs, conferences, speaking engagements, books, and journal publications. ETA actively supports training and education through the development of study guides and seminars, as well as working with a large number of ETA-approved schools and courses. ETA also works with high schools, vocational schools, colleges, universities, educators, corporate trainers, correctional facilities, and electronics industry professionals to find proper and sufficient training resources in their area.

When preparing for an ETA certification examination, examinees are encouraged to use suggested study materials listed on the available competencies. In addition to the many offerings in the ETA Online Store, ETA offers study materials developed exclusively for the ETA Customer Service and Associate CET examinations. These were written by ETA professionals for ETA professionals.

$25 Members / $30 Non-Members

The CSS Study Guide contains all of the workforce readiness and soft skills information in previous editions plus new chapters such as Social Media. The best way to prepare for the popular Customer Service Specialist exam also prepares you for working with other technicians and service personnel at your place of employment and at the other firms your company may deal with. It contains chapter quizzes and an overall practice exam quiz similar to the actual CSS exam.

The information contained in this guide is applicable to anyone who works with the public: helpdesk, sales, educators, business owners, nurses, repair technicians, and co-workers!

The Associate CET Study Guide, 6th Edition
$50 Members / $60 Non-Members

The latest edition is now available. It features 22 chapters authored by 16 practicing technicians and instructors from around the world, as well as new practice exams and test site locator access.

Technical topics range from Electronic Components, DC Circuits, Microprocessors and Transmitters to essential skills every Certified Electronics Technician needs such as Record Keeping and Technical Writing. Each chapter is followed by a practice quiz and the entire guide is covered in a final Online Practice Examination, which will further prepare an individual for the Associate CET examination. It also comes with a link to a complete online listing of current Certification Administrator locations. With this, an exam candidate can easily find a location for testing.

ETA’s store also offers study materials created by ETA members for ETA certifications. These materials are tailored to their specific certification exams.

The EM-series of study guides gives students the knowledge they need to qualify as entry-level technicians, and provides the necessary foundation for further studies in specialized fields. The study guides are closely coordinated with the ETA competencies and exams. Each study guide builds on the one before it. Together they form an efficient, no-time-wasted path to knowledge and certification.

The basic goal of the study guides is the same as the goal of the EM certifications themselves: each milestone on the way to eventual mastery is useful in and of itself, giving students immediately useful information and permitting them to earn graduated certifications commensurate with their growing knowledge.

There are 5 EM study guides covering: DC Basics; AC Basics; Analog Basics; Digital Basics; Comprehensive. Please visit www.eta-i.org to order.
Taking an ETA Examination

1. Decide which ETA certification(s) you would like to take and review the free objectives/competencies provided by ETA. Call to see if additional study materials are available.
2. Find an ETA certification administrator (CA) close to you to proctor the exam. You can search ETA’s online database of test sites at www.eta-i.org/test_sites.html, or contact ETA at (765) 653-8262.
3. Decide whether to take the exam online with Trapeza or paper/pencil. Note: A certification administrator must be present regardless of which test format is chosen.
4. Arrange a time to take the exam with the chosen certification administrator.
5. Arrive early with the proper materials to take the exam. You may bring scratch paper and a non-programmable calculator to the exam. For most exams, you will be given two hours if needed. Photo ID and #2 pencils required. No electronic devices are permitted.
6. Once completed, the certification administrator will submit your exam and information along with payment. If you test online with ETA, then you will be able to view your score(s) immediately.
7. Examinations are processed within 7-10 business days of arrival at ETA headquarters. However, scores may be requested online through the ETA website (www.eta-i.org/exam_results.html).
8. If you fail an ETA certification examination taken with pencil/paper, then you may then request an examination review which covers the questions you missed. AST112, AVN299, TRN112, BIET103, GVT111, and CSM107 examination reviews are available. Examination reviews are available for an additional $25.00.

**As provided for under the ADA (American’s with Disabilities Act), if you require special needs accomodation in order to complete the certification process, then please notify your Certification Administrator when scheduling your exam.

Ladder of Career Progression:

ETA provides a stackable, latticed path for career advancement. Basic entry levels for Student (SET) and Associate Electronics (CETa); Journeyman (CET), Senior (CETsr) and Master (CETma); Basic, Journeyman and Master Residential Electronics Systems Integrator (RESI); Master Satellite Installer; Fiber Optics Installer (FOI), Fiber Optics-Outside Plant (FOT-OSP), Fiber Optics Technician (FOT), and Fiber Optics Designer (FOD), or endorsements for specific disciplines have been designed into the program as the need occurs.
**Apprentice Electronics Technician (APP)**
The telecommunication Apprentice certification program (APP) is designed to only measure the knowledge of basic direct and alternating current theory as well as basic technical mathematics necessary to begin a training program in this field. Knowledge of cabling, power supplies, test equipment, as well as safety are also measured. This program is primarily targeted towards those who wish to pursue a technical career in the telecommunications industry and want to demonstrate their ability and knowledge to benefit from an in-company or company sponsored technical training program. *(This exam does not replace the Associate Certified Electronics Technician (CETa) certification.)*

**Associate Certified Electronics Technician (CETa)**
*Associate exam FREE if taken with a Journeyman exam at the same time.*
The Associate certification is designed for technicians who have less than two years experience or trade school training for electronics technicians. The Associate certification is valid for four years. It is also the foundation for the Journeyman certification program. The CETa is more in-depth than the Student Electronics Technician (SET) as it expands on all of the topics listed within the SET. The CETa is now a renewable certification.

**Electronics Modules (EM1-5)**
The EM5 program is based on ETA’s Associate level certification (CETa). The CETa competencies have been divided into five sections called “modules.” The purpose of this is to align with a growing portion of the electronics education industry that is charged with providing electronics training that does not include the total content of traditional Basic Electronics courses. In some instances, technical institutions are asked to provide training in only certain portions of electronics. This is so that companies that need only narrower skills and knowledge (than one expects of a complete CETa) can employ workers who have required knowledge and skills for only the technology and processes they currently use at that company.

To provide a path for the technician leading to the CETa credential, the five BASIC modules of the CETa can be acquired individually. Once a technician attains all five module certifications, ETA will issue an official CETa certification (all five must be passed within a two-year period). The technician may also choose to gain only those modules needed in order to be employable.

The five basic Electronics Modules are:
- Direct Current (DC)
- Alternating Current (AC)
- Analog
- Digital
- Comprehensive

**Student Electronics Technician (SET)**
The SET allows high school students and entry-level technicians the opportunity to earn a basic beginner’s certification. The examination covers a variety of topics including: Electrical Theory; Electronic Components; Soldering-Desoldering and Tools; Block Diagrams-Schematics-Wiring Diagrams; Cabling; Power Supplies; Test Equipment and Measurements; Safety Precautions; Mathematics and Formulas; Electronic Circuits; Series and Parallel; Amplifiers; Interfacing of Electronics Products, Digital Concepts and Circuity; Computer Electronics; Computer Applications; Audio & Video Systems; Optical Electronics; Basic Telecommunications; and Technician Work Procedures. The SET also has an optional hands-on component that can be used as a part of the training process and will be noted upon completion and passing of the SET examination.

Through a partnership with ETA, the Student Electronics Technician is administered by NOCTI. Please visit www.nocti.org for information on taking the SET as well as costs for the exam and optional hands-on component.
Biomedical Electronics Technician (BMD)
Journeyman Option
BMD — $75.00
Biomedical electronics technicians are expected to obtain knowledge of the principles of modern biomedical techniques, the proper procedure in the care, handling, and maintenance of biomedical equipment and to display an attitude/behavior expected of an electronics technician who works in a hospital or healthcare environment.

Biomedical Imaging Equipment Technician (BIET)
Journeyman Option or Stand-Alone
BIET — $75.00
A BIET should be familiar with the following topics: Anatomy, Medical Terminology, Computer, Electro/Mechanical Safety, Picture Archive Communication System, Diagnostic Ultrasound Equipment, Building Wiring, Basic Radiographic Equipment, Film Processing, Test Equipment, Magnetic Resonance Imaging, Computed Tomography, Nuclear Medicine, Codes and Regulations, Troubleshooting, Radiation Safety, Radiation Physics, and Linear Accelerators.

If you hold a Standalone BIET and later complete the Associate CET (CETa), then you are eligible to upgrade to a Journeyman CET! To apply for the Journeyman CET, you must have two or more years of combined work and electronics training. To upgrade, please fill out the Journeyman CET upgrade form. Journeyman upgrades are $50.

ETA SUBJECT MATTER EXPERTS

ETA’s exam advisory boards, specific for each certification, are composed of subject matter experts (SMEs) who are demographically and educationally diverse with a broad range of experience. ETA’s three-step process for evolving competencies is now used by the all-industry National Coalition for Electronics Education (NCCE) in arriving at curricula and competency standards. You can learn more about NCCE at www.ncee-edu.org.

Certification committees require decisions on when the current exam(s) should be replaced; editing, adding, deleting current exams; seeking input to aid in keeping exams at the current state of the technology; inputting new questions and graphics; reviewing questions; editing the beta exams and going over new exams with a ‘fine tooth comb’ to make sure errors are at a minimum. Chairpersons can help by seeking out new committee members or other experts to help hone the exams and policies. Bear in mind that ETA does not know of any other industry association that has the wide range of certification programs ETA does. When the CET program started in 1966, ETA had one exam. That was for the radio-TV technician. So you see why the committee chair is so important to the profession. Task analysis by educators, employers, and practitioners is an important part of the process of developing industry-based competencies, upon which the certification exams are based. Both internal and external judgments are included in development.

ETA’s panels of experts are second to none. Strong educator input by committees of SMEs, multiple reviews by the ETA Advisory Board, many national associations, and technicians currently working in the field provide a level of review unprecedented in the electronics industry. Educators, practitioners, students, and employers have subjected ETA’s assessments to critical scrutiny. Reliability, Validity, and Consistency are hallmarks of ETA certifications. ETA examinations are reviewed for updating each year.

If you would like to volunteer as a SME, then please visit www.eta-i.org/subject_matter_experts.html and contact ETA’s test development department.
Broadband-Voice over Internet Protocol (B-VoIP)

B-VoIP technicians are versed in telephone and Internet communications. They install, maintain, and repair/replace voice, data, and video over Internet Protocol equipment. They are capable of interconnecting B-VoIP equipment to local and wide area computer network systems. They are familiar with many acronyms used in the telecom industry. They are capable of performing cable installation, replacement/modernization and interconnection between different cable types and wireless equipment. They are knowledgeable in the protocols being used for the telecommunications industry. They are capable of configuring and provisioning B-VoIP equipment and transmission media.

Certified Satellite Installer (CSI)

CSI Endorsements — $60.00 ea.

*Certified Satellite Installer exam FREE if taken with all four endorsements at the same time

The exams are practical and cover a broad range of hardware and broadcast technology, but are not limited to specific brands of products. The CSI covers: Satellite Communications History & Theory, Satellite Dish Reflectors, Cabling, Amplifiers, Satellite Dish Feed—horns – LNBs & LNBFs, Satellite System Installation – Site Surveys, Satellite Receivers – Digital Technology, Interfacing With Other Consumer Electronics Equipment, Transmission – Internet Systems, Troubleshooting, Repairs, Sun Outage, and Safety.

Available CSI Endorsements:
- Antenna
- C and Ku Band
- Commercial
- S-MATV

Each of the four endorsements (Antenna, C and Ku Band, Commercial, and SMATV), if taken at separate times, is $60 per endorsement; if the CSI and all four endorsements are taken at the same time it is $240 - a price break of $75; if you already have your CSI and later take all four of the endorsements at the same time the price is $180 - a $60 price break.

If you hold a Standalone CSI and later complete the Associate CET (CETa), then you are eligible to upgrade to a Journeyman CET! To apply for the Journeyman CET, you must have two or more years of combined work and electronics training. To upgrade, please fill out the Journeyman CET upgrade form. Journeyman upgrades are $50.

Distributed Antenna Systems (DAS)

Distributed Antenna Systems technicians and installers cover basic knowledge concepts of distributed antenna systems and antenna installation. This also includes service and skills applicable to all of the functions required to safely and completely install, maintain, troubleshoot and provide support of in-building distributed antenna systems, communications and electronic equipment.

General Communications Technician — Level 1 (GCT1)

The General Communications Technician certification is a program that is modeled after communication systems basics and the U.S. Department of Homeland Security (DHS) guidelines covering all of the disciplines in the COMT program. The purpose of the GCT is to provide a study guide and training program, along with the appropriate certification testing that covers all of the areas a radio communications technician and engineer will encounter in the public safety communications or business/commercial radio field.

B-VoIP Exam Info

| Price:   | $150       |
| Type of Certification: | Stand-Alone |
| Renewal/Maintenance Required: | Yes |
| Certification Term: | 4 Yrs |
| Hands-On Required: | Yes |
| Questions on Exam: | 75 |
| Passing Score: | 75% |
| Time Allowed to Test: | 2 hours |

CSI Exam Info

| Price:   | $75       |
| Type of Certification: | Journeyman or Stand-Alone |
| Renewal/Maintenance Required: | Yes |
| Certification Term: | 4 Yrs |
| Hands-On Required: | No |
| Questions on Exam: | 50 |
| Passing Score: | 75% |
| Time Allowed to Test: | 2 hours |

DAS Exam Info

| Price:   | $100       |
| Type of Certification: | Journeyman or Stand-Alone |
| Renewal/Maintenance Required: | Yes |
| Certification Term: | 4 Yrs |
| Hands-On Required: | No |
| Questions on Exam: | 75 |
| Passing Score: | 75% |
| Time Allowed to Test: | 2 hours |

GCT1 Exam Info

| Price:   | $100       |
| Type of Certification: | Stand-Alone |
| Renewal/Maintenance Required: | Yes |
| Certification Term: | 4 Yrs |
| Hands-On Required: | No |
| Questions on Exam: | 75 |
| Passing Score: | 75% |
| Time Allowed to Test: | 2 hours |
General Communications Technician — Level 2 (GCT2)

*Prerequisite is the General Communications Technician — Level 1 or Associate CET (CETa) certification

The General Communications Technician Level 2 certification is a program modeled after general industry communication systems encompassing more than the basics along with the U.S. Department of Homeland Security (DHS) guidelines covering all of the disciplines in the COMT program. The purpose of the GCT2 is to provide a certification program and testing that expands upon the coverage included in the GCT1 competencies. The GCT2 competency comprises more complex areas radio communications engineers and technicians will encounter in the public safety communications or business / commercial radio fields. This GCT2 certification will involve more knowledge of intricate skills and troubleshooting. The GCT program will require re-testing to renew every four years to keep current in the newest technology for all Levels.

Line & Antenna Sweep (LAS)

This Frequency Domain Reflectometer (FDR) certification includes hands-on testing and verification of line and antenna sweeping skills using modern FDR equipment, as well as a written exam. The LAS is a stand-alone certification, but it can be used as a Journeyman CET option when the Associate, or basic electronics, is also passed.

Mobile Communications and Electronics Installer (MCEI)

This certification includes basic knowledge concepts of land mobile radio (LMR) and associated electronics equipment installation. This also incorporates required skills applicable to all of the functions required to safely and completely install mobile communications and associated electronic equipment, including removal and reinstalation.

Passive Intermodulation Testing (PIM)

Passive Intermodulation (PIM) is a form of interference where intermodulation mixing occurs within the confines of the transmission line and antenna network of a radio system. The ETA PIM certification assures site managers that quality antenna installation has taken place and meets the desired engineering and propagation standard for that site. The PIM test set operator knows how to use the testing equipment hardware, and can do so in a safe and harmless manner. Additionally, the ETA certification is based on the IEC 60237 standard covering the installation of antennas, connectors, jumpers, and related antenna network elements, allowing the holder of that certification to use any manufacturer’s test set at any frequency range. An ETA certified technician has a clear understanding of antenna theory and interference testing and will be well positioned to help resolve site PIM issues, so resolving these interference issues will be easier for the ETA-certified technician.

Personal Communication Service-Cellular (PCS-C)

A Personal Communication Service-Cellular examination will cover a variety of categories. A PCS—C must be familiar with: RF transmit, propagate and receive principles, Technical Procedures, Technical capabilities, Test Equipment, Knowledge of Components, Antennas, Frequency bands, Customer Relations, Safety, and Regulations.

## ETA Certifications

**General Communications Technician — Level 2 (GCT2)**

*Prerequisite is the General Communications Technician — Level 1 or Associate CET (CETa) certification*

The General Communications Technician Level 2 certification is a program modeled after general industry communication systems encompassing more than the basics along with the U.S. Department of Homeland Security (DHS) guidelines covering all of the disciplines in the COMT program. The purpose of the GCT2 is to provide a certification program and testing that expands upon the coverage included in the GCT1 competencies. The GCT2 competency comprises more complex areas radio communications engineers and technicians will encounter in the public safety communications or business / commercial radio fields. This GCT2 certification will involve more knowledge of intricate skills and troubleshooting. The GCT program will require re-testing to renew every four years to keep current in the newest technology for all Levels.

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RF Interference Mitigation (RFIM)
RF interference mitigation technicians are expected to obtain knowledge of radio frequencies, how they interact in the environment and within equipment, how to identify and to correct interference problems. Prior experience with radio systems and equipment is strongly suggested (or taking a RF Interference hunting course) before taking this certification exam.

Radar (RAD)
Radar electronics technicians are expected to obtain knowledge of radar basics and concepts, which are then applicable to various types of avionics, maritime, and land radar systems. Radar electronics technicians must be knowledgeable and have abilities in the following technical areas: Block Diagrams and Schematics, Components, Cabling and Antennas, Hand Tools & Soldering, Mathematics, Amplifiers, Radar Transceivers, Interfacing, Satellite, Wireless, Data Communications, Computers and Digital Concepts, Software-Programming, and Troubleshooting.

TRN Wireless Communications Technician (TRN)
A wireless communications certification focused primarily on the private wireless industry. The TRN (formerly USMSS) is based on the Wireless Communications (WCM) competencies with the addition of areas related to LMR.

Telecommunications (TCM)
Telecommunications electronics technicians are expected to obtain knowledge of wired and wireless telecommunications basic concepts, which are then applicable to various types of voice, data and video systems. Telecommunications Electronics Technicians must be knowledgeable and have abilities in technical areas such as: Cabling, Analog Telephony, Equipment, Telecom Safety and Mathematics, Transmission Service Providers and Protocols, Distribution Methods, Digital Telephony, Interfacing, and Troubleshooting.

Wireless Communications (WCM)
ARINC Installer, Technician (AFI, AFT)
ARINC organizes aviation industry committees and participates in related industry activities that benefit aviation goals: promote safety, efficiency, regularity, and cost-effectiveness in aircraft operations. ARINC recognizes ETA International as the fiber optics industry training certification entity in regards to the aerospace industry in the United States. The ARINC certification is based on the SAE International-recognized standards.

Data Cabling Installer (DCI)
Stand-Alone
DCI — $150.00
ETA data cabling installers are expected to know the basic concepts of copper cabling installation and service—which are then applicable to all the procedures required to safely and competently install communications cabling. Basic electricity and safety; data communications basics; definitions, symbols and abbreviations; cable construction and types; cable performance characteristics; cabling standards; basic network topologies; basic network architectures; National Electric Code (NEC); cabling system components; DCI installation tools; connectors and outlets; cabling system design; cabling installation; connector installation; cabling testing and certification; cabling troubleshooting; documentation.

Fiber Optics Designer (FOD)
The ETA 40 hour Fiber Optics Designer training program is an optical designer certification that will provide an in-depth knowledge of optical local area networks. This certification covers all aspects of a successful fiber optic system design from network protocols, network configurations, optical cabling, industry communications standards, determination of fiber count, hardware selection, splicing/termination methods, and cable system testing and documentation. All that is learned in class is put into practice through multiple and intensive case studies. The ETA-certified Fiber Optics Designer program provides detailed instruction and practice of Local Area Network fiber optic design.

Fiber Optics Installer (FOI)
A fiber optics installer has a general understanding of optical fiber installation, connectorization, splicing, and testing. He or she is also familiar with optical fiber, connector, and splice performance characteristics described in TIA/EIA-568B, ITU-T G.671, ITU-T G.652 and Telcordia GR-326. A fiber optic installer can perform connector endface evaluation as described in TIA/EIA-455-57B and is proficient in optical loss testing, as described in TIA/EIA-526-14A. He or she also understands the installation requirements described in articles 770 and 250 of the National Electrical Code (NEC). A fiber optic installer is proficient at the installation of connectors on various types of fiber optic cables, using various types of epoxies, and performing mechanical and fusion splicing.

Fiber Optics Technician (FOT)
*Prerequisite is the Fiber Optics Installer
A fiber optics technician has a full understanding of inside plant optical fiber, connector, and splice performance characteristics as described in TIA-568C and can use these performance characteristics to create a worst-case power budget for a fiber optic cable plant. An FOT can proficiently perform optical loss testing as described in TIA/EIA-526-14A and perform connector endface evaluation as described in TIA-455-57B. Using an OTDR, an FOT can effectively locate faults in a fiber optic cable, mated connector pair, or splice as well as evaluate optical fiber performance, mated connector pair performance, or splice performance for compliance with TIA-568C.

If you hold a Standalone FOT and later complete the Associate CET (CETa), then you are eligible to upgrade to a Journeyman CET! To apply for the journeyman CET, you must have two or more years of combined work and electronics training. To upgrade, please fill out the Journeyman CET upgrade form. Journeyman upgrades are $50.

<table>
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<th>Price</th>
<th>Type of Certification</th>
<th>Renewal/Maintenance Required</th>
<th>Certification Term</th>
<th>Hands-On Required</th>
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<td>75</td>
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<td>2 hours</td>
</tr>
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Revised 1/8/16
Fiber Optics Technician—Outside Plant (FOT-OSP)
A fiber optics outside plant technician must be able to properly terminate, test and troubleshoot single mode fiber optic communication systems. This includes various types of termination techniques applicable to high-speed laser-based systems including SONET, DWDM, FTTx, and CATV networks using ITU-T G.652 and G.655 single mode fibers. Disciplines include mechanical and fusion splicing per the TIA-758 standard and the preparation of fiber optic cables and cable management products. Technicians must also know testing and troubleshooting of each element of the fiber optic communication systems along with unique test requirements of SONET, DWDM, FTTx, and CATV networks.

SAE Fabricator (SFF)
For individuals involved in the manufacturing, installation, support, integration and testing of fiber optic systems. It is intended for managers, engineers, technicians, trainers/instructors, third party maintenance organizations, quality assurance and personal production. Both the SAE and ARINC certifications are based on SAE standards.

Termination and Testing Technician (TTT)
This certification covers knowledge to properly, terminate, connect, test, and troubleshoot IP-enabled voice/data/video cable and devices to each other. One of the key advantages to using Cat 5e/6/6A, and fiber-optic cables and connectors for electronic security and voice/video/data installations is that these cable connections can be readily built using the proper tools and techniques, which are taught in the required course. This part of the training will emphasize the ETA challenge of being vendor-neutral and applying industry standards for terminations and cable performance. The knowledge gained by the examinees will be applicable to any vendor’s products within the scope of the technology studied. One of the primary principles of the network cabling standards is that if a cable is properly terminated and tests satisfactory, then cable can be used to connect any proper device from any manufacturer. There are vendors making thousands of different devices, all of which can be readily connected to a network if the fiber, coax, and/or copper cable to be used is properly terminated and tested.

FOT-OSP Exam Info
- Price: $150
- Type of Certification: Journeyman or Stand-Alone
- Renewal/Maintenance Required: Yes
- Certification Term: 4 Yrs
- Hands-On Required: Yes
- Questions on Exam: 75
- Passing Score: 75%
- Time Allowed to Test: 2 hours

SFF Exam Info
- Price: $175
- Type of Certification: Stand-Alone
- Renewal/Maintenance Required: Yes
- Certification Term: 1 Yr
- Hands-On Required: Yes
- Questions on Exam: 75
- Passing Score: 75%
- Time Allowed to Test: 2 hours

TTT Exam Info
- Price: $100
- Type of Certification: Stand-Alone
- Renewal/Maintenance Required: Yes
- Certification Term: 4 Yrs
- Hands-On Required: Yes
- Questions on Exam: 75
- Passing Score: 75%
- Time Allowed to Test: 2 hours

"Obtaining an ETA certification brought a level of certification to the City of Fort Worth that it never had before. It opened new doors to customers that we previously were not able to obtain."

Chris Dusseau, CETsr
Communications Technician, IT – Radio Services
City of Fort Worth, TX

"I love my job! I started my company more than 30 years ago with a hot soldering iron. The first site I built was on top of 11,162 foot Elk Mountain. My daily commute takes me through the Grand Teton Mountains where I own towers and perform maintenance on them. Radio maintenance in Wyoming requires winter access. If the roads are open we go to work."

Greg Ryan, CETsr
Ryan Electronics Inc.
Saratoga WY

"Culminating an educational program with a world-class ETA certification can boost employee performance and advancement potential. We have requests to provide training with an ETA certification option from companies all over the world. The demand is there for employees with this knowledge and skill set."

Lee Kellett
General Manager, Light Brigade
Tukwila, WA

"Here I am on my new job at the City of Eugene that only an ETA certification would allow me to acquire. ETA helped transform my skills into an awesome career. Thank you ETA!"

Brian Greig, CETsr
Radio Communications Technician
City of Eugene, OR
Computer Service Technician (CST)

The Computer Service Technician performs hardware servicing and provides systems software skills for personal computers. The knowledge used includes Computer Assembly/Disassembly; Motherboards; Buses; System Resources, Processor Characteristics; Physical and Electronic Memory Characteristics; Secondary Storage Devices; Peripheral Devices; Ports; Power Concepts and Supplies; Basic Networking; Portables; Digital Concepts; Troubleshooting/Preventive Maintenance; Operating Systems; File Management; Safety, Security and Workplace Practices.

Network Computer Technician (NCT)

Network Computer Technicians are expected to obtain knowledge of computer electronics basic concepts, Internet and networking technology applicable to various areas of the computer industry. More specifically, NCTs must be able to function, structure, operate, file manage, install, configure/upgrade, manage memory, diagnose and troubleshoot operating systems and hardware (including motherboard and processors and printers).

Network Systems Technician (NST)

A Network Systems Technician is a network professional who is expected to obtain knowledge of computer network basic concepts, applicable to the various specialty areas of the computer industry. The NST must be familiar with the following: Computer Network Terminology, Network Administration, Wide Area Networks and Devices Used to Extend Networks, Network Architectures, Computer Network Topologies and Classifications, Network Services, Network Operations, Network Standards, Troubleshooting LAN/WAN Test Equipment, Network Server and Workstation Computer System Hardware, Network Operating Systems, and Disaster and Security Planning for Networks.

Wireless Network Technician (WNT)

The Certified Wireless Network Technician is a network professional who is expected to obtain knowledge of the operation and maintenance of wireless networking concepts, RF and IR propagation and modulation technologies, applicable to all the specialty areas of the wireless networking industry. Once the WNT has acquired these skills and knowledge, the technician will be able to enter employment in any part of the networking industry. With minimal training in areas unique to the specific products, the WNT should become a productive member of computer industry workforce.

CST Exam Info

| Price: | $75 |
| Type of Certification: | Journeyman or Stand-Alone |
| Renewal/Maintenance Required: | Yes |
| Certification Term: | 4 Yrs |
| Hands-On Required: | No |
| Questions on Exam: | 75 |
| Passing Score: | 75% |
| Time Allowed to Test: | 2 hours |

NCT Exam Info

| Price: | $75 |
| Type of Certification: | Journeyman or Stand-Alone |
| Renewal/Maintenance Required: | Yes |
| Certification Term: | 4 Yrs |
| Hands-On Required: | No |
| Questions on Exam: | 75 |
| Passing Score: | 75% |
| Time Allowed to Test: | 2 hours |

NST Exam Info

| Price: | $100 |
| Type of Certification: | Journeyman or Stand-Alone |
| Renewal/Maintenance Required: | Yes |
| Certification Term: | 4 Yrs |
| Hands-On Required: | No |
| Questions on Exam: | 100 |
| Passing Score: | 75% |
| Time Allowed to Test: | 2 hours |

WNT Exam Info

| Price: | $75 |
| Type of Certification: | Journeyman or Stand-Alone |
| Renewal/Maintenance Required: | Yes |
| Certification Term: | 4 Yrs |
| Hands-On Required: | No |
| Questions on Exam: | 50 |
| Passing Score: | 75% |
| Time Allowed to Test: | 2 hours |
Photonics Technician Operator (PTO)
Photonics technicians work in jobs where they assemble, measure, test, and repair optical components such as lenses, mirrors, filters, fiber optics, and electro-optic or other photonics devices plus optical sources such as lasers and light-emitting diodes (LEDs). Technicians typically work in applications where photonics is an “enabling technology” — manufacturing/materials processing, Internet/communications, biomedical equipment, and defense/homeland security systems development/integration. Due to the high technical standards and safety issues involved, technicians will receive specialized training in both knowledge and hands-on skill items.

Photonics Technician Specialist (PTS)
Photonics technicians work in jobs where they assemble, measure, test, and repair optical components such as lenses, mirrors, filters, fiber optics, and electro-optic or other photonics devices plus optical sources such as lasers and light-emitting diodes (LEDs). Technician specialists work in areas that utilize the skills and knowledge of the operator level, but also an additional higher level of optics, photonics physics, and technology that require a greater variety of hands-on competencies in laser and optical components and systems. They typically work in applications such as the following: research and development laboratory; product development, test, and production specialists who are team members for original equipment manufacturers (OEMs) of lasers, optics, and photonics components and systems; field service specialists for OEMs or companies that manufacture and/or utilize lasers, optics, and photonics components and systems. They are graduates of AAS degree programs that focus specifically on optics, lasers and photonics.

Specialist in Precision Optics (SPO)
Precision optics specialists produce, test, and handle optical (infrared, visible, and ultraviolet) components that are used in lasers and sophisticated electro-optical systems for defense, homeland security, aerospace, biomedical equipment, digital displays, renewable energy production, and nanotechnology. SPOs also integrate precision optical components into these electro-optical systems and maintain them, including handling, storage and transport. SPOs also have experience in shaping, polishing, and coating precision optics; using optical instruments; understanding procedures and guidelines for verifying optical component dimensions and tolerances. These technicians have a greater range of hands-on competencies and experience with fabrication and test a wider range of types of optics and optical coatings.

Technician in Precision Optics (TPO)
Precision optics technicians work in optical component fabrication technical areas in optical shops, optics manufacturers and in quality control departments (incoming and/or outgoing inspection) for organizations that incorporate precision optics into various systems. They must be able to examine the properties and uses of a variety of bulk materials; have experience in the use of equipment and procedures for shaping, polishing, and coating precision optics; and be able to use optical instruments, procedures and guidelines for verifying optical component dimensions and tolerances. They can also handle, store, and ship precision optical components. Precision optics technicians have the minimum required hands-on competencies and experience with fabrication and tests of fewer types of optics. Due to the high technical standards and safety issues involved, technicians will receive specialized training in both knowledge and hands-on skill items.

CHECK OUT ETA ON: [Facebook icon] [LinkedIn icon] [Twitter icon] [YouTube icon] [Google Plus icon]
ETA’s Education Forum, a world-class technical education conference, is held annually at various sites in the United States. It is the ideal venue for both professional and curriculum development, regardless of skill level, focusing on hands-on training.

The Education Forum is the focal point for technical and educational professionals to discover emerging technologies, network and collaborate with fellow technicians and educators, have access to training and speaking sessions with industry experts, sit for certification examinations, gain continuing education credits, and discuss classroom implementation strategies.

ETA hosts training workshops and sessions provided by industry leaders such as Light Brigade, Motorola Solutions, Corning Cable Systems, Slayton Solutions, Dover Telecommunication Services, Ira Weisenfeld & Associates, Bird Technologies and more. In addition, ETA conducts an Annual Membership Meeting and Awards Banquet at the Education Forum.

ETA is co-locating with the International Wireless Communications Expo (IWCE). Since 1977, the International Wireless Communications Expo (IWCE) has been the authoritative annual event for communications technology professionals in the working world. IWCE features over 370 exhibitors showcasing the latest products and trends in the industry. Over 7,000 individuals attend from a diverse group of industry professionals including government/military; public safety (law enforcement, fire service, emergency medical & 911); utility; transportation and business enterprise. This year’s show will be held March 21-25, 2016 at the Las Vegas Convention Center in Las Vegas, NV.

Visit the website for the current schedule at www.educationforum.info.

### ETA Certifications

#### Renewable Energy

**Electric Vehicle Technician (EVT)**

Electric Vehicle Technicians (EVTs) work on vehicles powered solely by electricity. They perform routine maintenance like other mechanics; however, EVTs must have extensive knowledge of how lithium-ion batteries and automotive systems interact. In addition, they may replace hydraulically assisted systems with electric-powered systems, such as power-steering pumps or air-conditioning compressors, to improve fuel economy.

Certification is for individuals interested in attaining training from an ETA® International-approved EV school. In this program students will develop skills in safety, troubleshooting and repairing of Electric Vehicles. Due to the high voltage (300 VDC and above) and safety issues involved, technicians are required to receive specialized training in both knowledge and hands-on skill items.

**Photovoltaic Installer — Level 1 (PVI-LVL1)**

The Photovoltaic Installer Certification provides assessments in solar system installations. Individuals must have hands-on training from an ETA-approved school and be knowledgeable in topics such as solar resources and principles; selection identification; proper installation sequence, performance characteristics and troubleshooting methods; permitting best safety practices; and economical impact.

**Small Wind Installer — Level 1 (SWI-LVL1)**

The ETA International Small Wind Installer Certification provides practical assessments in wind power energy generation under 100 kW. Hands-on training from an ETA-approved school is necessary and individuals should be educated in the following topics including the theory of wind energy and electrical generation; site evaluation; design and selection of wind systems; proper installation, components and troubleshooting methods; safety; finance; and environmental assessment and management.

### Exam Information

#### PVI-LVL1 Exam Info

- **Price:** $150
- **Type of Certification:** Stand-Alone
- **Renewal/Maintenance Required:** Yes
- **Certification Term:** 4 Yrs
- **Hands-On Required:** Yes
- **Questions on Exam:** 75
- **Passing Score:** 75%
- **Time Allowed to Test:** 2 hours

#### SWI-LVL1 Exam Info

- **Price:** $150
- **Type of Certification:** Stand-Alone
- **Renewal/Maintenance Required:** Yes
- **Certification Term:** 4 Yrs
- **Hands-On Required:** Yes
- **Questions on Exam:** 86
- **Passing Score:** 75%
- **Time Allowed to Test:** 2 hours

#### EVT Exam Info

- **Price:** $200
- **Type of Certification:** Stand-Alone
- **Renewal/Maintenance Required:** Yes
- **Certification Term:** 4 Yrs
- **Hands-On Required:** Yes
- **Questions on Exam:** 100
- **Passing Score for Safety Portion:** 100%
- **Passing Score:** 75%
- **Time Allowed to Test:** 2 hours

**ETA’s Education Forum**

ETA’s Education Forum, a world-class technical education conference, is held annually at various sites in the United States. It is the ideal venue for both professional and curriculum development, regardless of skill level, focusing on hands-on training.
Certified Alarm Security Technician (CAST)
Alarm-Security technicians must be able to identify and describe the operations of alarms and have basic understanding of technology and its configuration, fiber optics – telecommunications, software, and computers and locks. The CAST will be able to explain, understand, and use block diagrams and schematics, digital concepts, software, hand tools—soldering, data communications, and cameras and intercoms.

Electronic Security Networking Technician (ESNT)
The ESNT was developed for technicians who have gained knowledge and skills needed to properly cable, connect, install, program, and troubleshoot IP-enabled security devices onto local area networks and the Internet. This certification is an acknowledgement of the examinee’s familiarization and understanding of the hardware and theory of operation of this medium. It is a stand-alone certification that can also be used as a Journeyman option.

Residential Electronics Systems Integrator (RESI)
Residential Electronics Systems Integrator is a professional certification for those who design and oversee the installation and integration of electronics systems in residences and light commercial buildings. The objective of the Integrator is to produce a residential or light commercial electronics systems package that will allow all data, control, and communication signals to be integrated at the premise controller and converged into one secure cohesive communication stream, to either be used within the premise or to be passed back and forth through the gateway. The Integrator should be proficient in the many protocols used over diverse media to communicate with and control residential and light commercial electronics systems.

Available RESI Endorsements:
- Audio-Video
- Computer Networking
- Switch Closed Circuit TV
- Security-Surveillance
- Environmental Control

Master Residential Electronics Systems Integrator (RESIma)
The MASTER RESI will be proficient in all of the core RESI skills and knowledge and in planning and designing electronics and communications equipment systems and layout for new and existing construction. The MASTER RESI is capable of designing the entire system and network for audio, video, data and control of security and environment to function in one IP bit stream converged at the home controller. He/she is also capable of troubleshooting and debugging the system and planning installation or modifications. The MASTER RESI has extensive knowledge of the operation and technology and is proficient in each of the basic five subcategories of residential electronics.

The MASTER RESI certification prerequisites include successfully completing the core RESI certification requirements plus holding each of the five RESI endorsements-Audio Video, Closed Circuit TV, Computer Networking, Environmental Control, and Security-Surveillance.
Avionics (AVN)
The avionics specialty is designed to assess the knowledge and skills of individuals who install, maintain and adjust electronics equipment, cabling and the accessories used in aviation communications and control equipment. An FCC GROL is also highly recommended for this work. Several of the topics covered in this examination include: Avionics Systems, Cabling, Computers and Digital Concepts, Amplifiers, Interfacing, Antennas and Transmission Lines Components, Mathematics, Network Topologies and Infrastructures, People Relations, Optical Cabling, Safety, Test Equipment and Tools and Satellite Communications.

Certified Service Manager (CSM)
This is a valuable examination for those who serve as managers, owners or department heads of service businesses such as electronics, computer, communications and appliance repair facilities. Several of the topics covered in this examination include: Manager Responsibilities and Objectives, Personnel Profiles and Job Descriptions, Team Building, Training, Hiring and Employment Laws, Employee Compensation Systems, Customer Relations Policies and Skills, Service Policies, Service/Production Area Development, Test Equipment Needs and Procurement, Financial and Parts Department Management, Warranties and Risk of Liability, Contract Negotiation, Vehicle Procurement and Maintenance, Association Memberships/Involvement, Quality Systems, Security, Safety/OSHA, and Project Management.

Commercial Audio Technician (CAT)
The Commercial Audio Technician (CAT) is a certification for sound system technicians who need to design, install and troubleshoot speech and music sound systems in commercial and institutional environments. Commercial Audio Technicians must be knowledgeable in Acoustics, Microphones, Speakers, Sound & Measurements, Wiring, 70-Volt Systems, Troubleshooting, Safety, and Codes and Standards.

Customer Service Specialist (CSS)
The Customer Service Specialist (CSS) is a certification that validates one’s work readiness skills through employability concepts. Though developed to meet the role of an evolving service oriented electronics technician, CSS is relevant to every industry, employer and employee. Topics included are Safety, Ethics, Respect, Teamwork, Communication, Telephone and E-mail Techniques, Social Media, Problem Solving, Interpersonal Relationships, and Sales and Marketing.

Gaming and Vending Technician (GVT)
The Gaming and Vending Technician (GVT) certification is intended for entry-level technicians with a sound background in electronics. Technicians will work in the field to troubleshoot, repair and calibrate gaming and vending type equipment. Money handling, basic electrical, circuitry, computer hardware and software, and safety are topics included in this certification. The GVT is a stand-alone certification and must be maintained every four years.
Industrial (IND)
Industrial journeyman-level electronics technicians are expected to obtain knowledge of industrial electronics basic concepts, which are then applicable to all the various specialty areas of industry. Industrial Electronics Technicians must be knowledgeable and have abilities in the following technical areas: Amplifiers, Optical Wiring, Block Diagrams-Schematics, Robotics, Hydraulics, Power Supplies, Test Equipment-Tools, Mathematics, Computers-Digital Concepts, Safety, Satellite-Wireless-Data, Communications, Cabling, Troubleshooting, Motors, Programmable Logic Controllers, and Software.

Radio Frequency Identification Technical Specialist (RFID)
This certification is intended for an electronics technician with an understanding of RFID. The technician should have a basic understanding of the hardware and theory of operation of radio communications as it applies to RFID radio transceiver technology. RFID is a stand-alone but can be used as a Journeyman option when the Associate exam is also taken and passed.

If you hold a Standalone RFID and later complete the Associate CET (CETa), then you are eligible to upgrade to a Journeyman CET! To apply for the Journeyman CET, you must have two or more years of combined work and electronics training. To upgrade, please fill out the Journeyman CET upgrade form. Journeyman upgrades are $50.

FCC Commercial Radio Operator Licenses
FCC Licenses are required by law to operate and maintain many types of communications equipment. The broadcast, aeronautics, and maritime industries are the primary employers of commercial license holders, although many other fields now require FCC licenses. ETA has proudly served as an FCC COLEM (Commercial Operator License Examination Manager) since 1993. You can read more about the FCC and its programs at www.fcc.gov

Marine Radio Operator Permit (MP) — Element 1
MPs, or MROPs, are required to operate radiotelephone stations aboard certain vessels that sail the Great Lakes. They are also required to operate radiotelephone stations aboard vessels of more than 300 gross tons and vessels which carry more than six passengers for hire in the open sea or any tidewater area of the United States. They are also required to operate certain aviation radiotelephone stations and certain coast radiotelephone stations.

General Radiotelephone Operator License (PG) — Elements 1 & 3
A PG, or GROL, is required to adjust, maintain, or internally repair FCC licensed radiotelephone transmitters in the aviation, maritime, and international fixed public radio services. It conveys all of the operating authority of a T2.

Global Maritime Distress and Safety System Operator (DO) — Elements 1 & 7
The DO, or GMDSS Operator, qualifies the holder to operate, and make some basic equipment adjustments to, Global Maritime Distress and Safety System (GMDSS) radio installations. It also confers the operating authority of the MP.

Global Maritime Distress and Safety System Operator - Restricted (RG) — Elements 1 & 7
The RG, or GMDSS Restricted, qualifies the holder to operate, and make some basic equipment adjustments to, Global Maritime Distress and Safety System (GMDSS) radio installations, but only on voyages that remain within twenty (20) nautical miles of shore. It also confers the operating authority of the MP.

Global Maritime Distress and Safety System Maintainer (DM) — Elements 1, 3, & 9
The DM, or GMDSS Maintainer, qualifies personnel as GMDSS radio maintainers to perform at sea repair and maintenance of GMDSS equipment. It also confers the operating authority of the PG and MP. NOTE: In instances where an applicant qualifies for both a DO and a DM, the applicant qualifies to hold a GMDSS Radio Operator/Maintainer License (DB).

Radiotelegraph Operator (T)
The T authorizes the holder to operate, repair, and maintain ship stations, and to repair and maintain coast radiotelegraph stations in the maritime services. It also confers all of the operating authority of a T2.

Ship Radar Endorsement — Element 8
Only persons whose commercial radio operator license bears this endorsement may repair, maintain, or internally adjust ship radar equipment.

IG Exam Info
Price: $75
Type of Certification: Journeyman
Renewal/Maintenance Required: Yes
Certification Term: 4 Yrs
Hands-On Required: No
Questions on Exam: 75
Passing Score: 75%
Time Allowed to Test: 2 hours

RFID Exam Info
Price: $100
Type of Certification: Journeyman or Stand-Alone
Renewal/Maintenance Required: Yes
Certification Term: 4 Yrs
Hands-On Required: No
Questions on Exam: 75
Passing Score: 75%
Time Allowed to Test: 2 hours
Association membership is voluntary—a fundamental premise of ETA’s member eligibility requirements that sets us apart from most certification associations. If you plan to or are currently working in any technical or related business area, then you are eligible to join ETA. Students, instructors, technicians, trainers, distributors, company owners, military personnel, and certified technicians all hold membership in ETA. Now you can too! Members receive benefits such as the High Tech News (ETA’s bi-monthly publication), communication with peers through regular members-only technical access message boards and forums, as well as discounts on various industry publications, conferences, and events. ETA International offers six types of membership: individual, student, institutional, master, retiree, and lifetime. All memberships are good for one year with the exception of the lifetime and two-year individual options. Each will receive a wallet card and wall certificate. You can view more information at www.eta-i.org/membership.html.

**Individual:**
**Price:** $40.00 USA / $55.00 International per year
Members of ETA receive a subscription to the *High Tech News* (HTN), ETA’s bi-monthly publication and discounts on ETA study materials, merchandise, and the Career Resource Center, in addition to access to the “Members-Only” site that includes free practice exams, HTN archives, and many other exclusive materials. ETA also offers a two year individual membership (USA only) for $75.00.

**Student:**
**Price:** $20.00 USA / $35.00 International per year
* Student ID or current course schedule is required.
Student memberships apply to those who are enrolled at state and commercial electronics training institutes or in correspondence and military courses. Students also receive the same benefits as those who are individual members of ETA in addition to assistance in developing a successful career. ETA offers professionals help in improving their resumes and other materials needed by employers.

**Institutional (Includes 4 Individual Memberships):**
**Price:** $250.00 USA / $350 International per year
Hardware manufacturers, public and private educational institutions, service providers, and affiliated groups can have a voice as an institutional member with ETA. Institutional memberships enjoy the same benefits as individual memberships.

**Master CET:**
**Price:** $25.00 USA / $45.00 International per year
You’ve earned distinction within the industry by becoming a Master Certified Electronics Technician (CETma). ETA can help you connect with other professionals from around the world to discuss issues, share experiences, and learn from one another. In addition, your membership gives you access to our members-only technical publications, seminars, workshops, newsletters and special services, in the same way as the individual membership.

**Retiree:**
**Price:** $10.00 USA / $30.00 International per year
If you have retired, and would like to stay involved in your industry, then an ETA retiree membership might be right for you. These memberships offer the same benefits of an individual membership, but at a reduced cost.

**Lifetime:**
**Price:** $500 USA / $1,000 International
If you would like a lifetime membership with no annual renewals at a great discount, then this is the option for you! Included are all of the perks of the individual membership plus the satisfaction of knowing you are supporting your industry with a lifetime commitment to ETA.

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**BENEFITS**

<table>
<thead>
<tr>
<th>Member Benefit</th>
<th>Non-Member</th>
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<tbody>
<tr>
<td><strong>High Tech News</strong>, ETA’s bi-monthly magazine, full of industry news, certification information and technical tips</td>
<td>FREE</td>
</tr>
<tr>
<td>Online Practice Exams</td>
<td>FREE</td>
</tr>
<tr>
<td>Career Resource Center</td>
<td>FREE Resumé and Job Postings</td>
</tr>
<tr>
<td>Study Materials</td>
<td>Discounts on selected texts</td>
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<tr>
<td>Discounted rates for ETA’s annual convention</td>
<td>Discount on registration fees</td>
</tr>
<tr>
<td>Innovation &amp; Tech Today magazine</td>
<td><strong>FREE</strong> (contact ETA for details)</td>
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</tbody>
</table>
Where are ETA-Certified Individuals?

In 2015 alone, technicians at the following companies chose to become certified through ETA International. This list does not include the thousands of students in electronics-related industries who also became ETA-certified in 2015.
Where are ETA-Certified Individuals?

City of Corpus Christi
City of Denton
City of Emmet
City of Eugene
City of Fort Smith Water Department
City of Fort Worth
City of Franklin
City of Gastonia NC
City of Geneseo
City of Grandview
City of Grapevine TX
City of Houston IT Department
City of Hudson
City of Jacksonville
City of Kelowna
City of Laurinburg
City of Lompoc
City of Long Beach
City of Los Angeles
City of Lumberton
City of Malta
City of McAllen
City of Memphis
City of Nelson
City of Newport News
City of Riverside
City of San Francisco Public Works
City of Seattle
City of Sparks Fire Department
City of Suffolk
Clark Wireless Inc
Clarksville Department of Electricity
CLC-Global Pte Ltd
Clear Communications & Electronics/Charlotteville ClearCom Inc
CMS Mechanical
Coast Mountain Wireless Communications
CoastCom Inc
Cobb EMC
Cochran Inc
College of Western Idaho
Colorado Department of Transportation
Columbia County Broadband
Columbus City Schools
Columbus Communications Inc
Com 1 Communications
Com Net Inc
Comcast
Comm Serv Co of Daytona Inc Radio One/Orlando
Comm Tech
Commenco Inc
Commercial Tower North Inc
Commonwealth Radio Service Inc/Blairs
Commonwealth Utilities Corporation
CommScape Inc
Comm-Tronics of Virginia/Prince George
Communication Plus Inc
Communication Service Inc
Communication Services of WNY & PA DBA Eagle Radio
Communication Technology LLC
Communications Cabling & Networking
Communications Center of Rockford
Communications Electronics
Communications Service - DR Spaulding Inc
Communications Service Co dba Radio One
Communications Service Inc/Portage
Communications Specialist Inc/Columbia
Communications Spocs
Communications Technologies Inc
Communications Technology, LLC
Communications USA Inc.
Comporium Communication
Comproducts Inc dba B&C Communication
Computer Depot Inc
Comsource of Michigan
Contex Communications
Comtronics Corporation
Connectivity Solutions
Con-Serv Industries Inc
Consolidated Telecom
Contrab Costa County Fire
Control Automation Tech
Control Communications Inc
Convergys
Copper Valley Telephone
Cosletic LLC
Cosner Comtech Inc
County of Powhatan
CP-Tel
CRCE Corp
Creative Communications
Crest
Crosstown Electrical & Data
Crown Castle
CRST Telephone Authority
Crystaloe Electrical & Plumbing Contractor
CTS Consolidated Telecom Services, LLC
Custom Utilicom
Cyber Communications
D & A Security System
D & D Communications Inc dba First Wireless
D & E Electronics
D & R Communications
Dakota Communications
Dale C. Roseman Inc
Day Management Corp dba Day Wireless Systems
DayStarr Communications
DC Water
DDL OMNI Engineering
Defense Log Agency
Delmarva Communications Inc
Delphinus Eng
Delta Construction
Delta Electric LLC
Delta Wireless
Denali National Park
Densco Electrical Engineering Pte Ltd
Department of Defense
Department of Homeland Security
Department of Justice
Department of Transportation Anchorage International Airport
DFA Security
DFW Communications
DHS/CBP/OIT
Diamond H Services
Dick's Sporting Goods
Digital Traffic Systems Inc
Digitcom Electronics/La Junta
Directorate of Planning, Training, Mobilization, and Security
DireTV
Dirigo Wireless
DISA PAC
Diversified Electronics Inc
Diversified Fire Protection
Dixie Power
DMA Landscape
DMR Consulting Inc
Douglas County Sheriff's Office
Douthits Radio Service Inc
Down Under Construction
Drew Wireless, LLC
DSI / NASA
DTS Reprographics Inc
Duluth/Superior Communications Inc
Duval County Public Schools
EA Electric Inc
Eagle Aviation Resources
Eagle Communications
Eagle Radio Technologies
East Georgia State College
East Kenton Power Coop
Eastern Municipal Water Division
Easton Utilities Commission
Echodyne
ECO Electrica
ECPI University
EDV Beratung Petri
Edward Rose & Sons
El Nuevo Dia
Ele General Contracting
Electric Conduct Construction
Electrical Corporation of America
Electrical Solutions Corp
Electronic Applications Company Inc
Electronic Comm
Electronic Engineering Company
Electronic Maintenance & Comm Inc
Electronic Service Solutions Inc
Elle Solution PL
Elite
Eltek Inc
Emergency Radio Service Inc
Energia Costa Azul
Energy Northwest
Engineered Protection Systems
Engineering Solutions and Products LLC
Englewood Hospital and Medical Center
Enlink Midstream
ENMR Plateau Telephone
Enesco PLC
Entergy
Enterprise Communications
Enterprise Security Systems
Epicor
EPS Security
Eqcoms Technology PTE LTD
ERC Inc
Ericsen
Ericsson
Ericsson AB
ES Net
ESCO Communications
Essential Network Technologies
ETA International
Etowah County Tech Center
Evarardo Casaranela
Exelis and Raytheon
Exelis Inc
Expert-Consult Telecom
F&B Communications
Faith Technologies Inc
FCI Ray Brook
Federal Network System
Fiber Business Solutions Group
Fiber Network Training
Fiber Optic Cable Shop
Fibernet Inc
FiberOpto Asia Pte Ltd
Fidelity Communications
Filer Mutual Telephone Co
Firetrol Protection Systems
First Communications
First Solar Inc
First Wirecross Inc
Five Stone
Flathead Electric Co-op
Fleet Readiness Center SW
Flock Enterprises
Flower City Communications LLC
FM Logistics
Folsom State Prison PIA
Fort Pierce Utility Authority
FortsBC
Freelance Inc
Freeman
Fremont County Sheriff
Ft Pierce Utilities Authority
G4S Parsons Pacific LLC
Gadsden City HS
Gage Telephone Systems Inc
Gainesville Regional Utilities
Gardonville Telephone
Gately Communications Co
GCAE Systems Group
GCI Industrial Telecom
Gem State Communications
GENCON
Gencron Limited
Where are ETA-Certified Individuals?
Where are ETA-Certified Individuals?

SaskPower
Savannah Comm & Elect
SBC
Schneider Electric
SCI Mahany Education
Scientific Research Corp
SEA CORP
Seadrill
Sears
Seaspan LLC
Secretaria de Salud
Seer Consulting
SEFNCO Communications
Sega Amusement Works
Segcom PR
Seimitsu
Semaphore Corp
Seminole County Government Department of Public Safety
Senera Gaming
Senko Advanced Components Inc
Seqvans Communications
Seisal Hospital
SFO Technologies Pvt Ltd
Sharp Communication Inc
Shaw Cable
Shental
Short Powerline Services
Shreveport Communication Service Inc
Sierra Comm Southwest Inc
Sierra Conservation Center
Sierra Electronics
Sierra Telephone Company
Silcher Systems & Tech PTE Ltd
Silicon Valley Clean Water
Silver Mountain Engineering, Ltd
Silver Star Communications
SiteWise Systems
SKLD Mechanical LLC
Skycom Satellite Systems
Skylasses Medical Center
Skywave Communications Inc
Slayton Solutions Ltd
Smart City
Smith Electric
Smithville Communications
Smithville Telecom
SMS Data Products
Snorhomish County
SOC LLC
Socket Telecom
Sombrol of Lexington
Sonoma County Water Agency
Soon Poh Telecommunications
Sonrenson Telecom Splicing
South Carolina Department of Transportation
South Central Bell Telecom
South Central Communications
South Lane School
South Plains Communications
South Texas College
South Texas Communications/McAllen
South Texas Electric Co-op
South Western Wireless
Southeast Arkansas College
Southeast Nebraska Communications
Southern Cable Network
Southern Eagle LLC
Southern Light LLC
Southwest Regional Maintenance Center
Southwestern Bell
Space Age Communications
Spectrum Communications Ltd
Spirit Aerosystems Inc
Spotsylvania Career & Technical College
Springfield Utility Board
SRC Inc
St. Joseph Co Airport Authority
St Louis Metro Police Department
Staging Techniques
Staley Communication Inc
Staley Technologies
Stamples Inc
State Farm Insurance
State of California Department Water Resources
State of Illinois - IL Century Network
State of Michigan
State of Washington
Staten Island Railway/Metropolitan Transportation Authority
Steams Electric
Steely Lumber Co
Stone Mountain Country Store
Sturgeon Electric
Sudden Link
Sun Communications
Sunies/Crown Castle
Superior Marine Solutions
Supreme Court of VA
Supreme Radio Comm
Sussex Tech Electronics
Sussex Technical High School
Sutel
Sutter Buttes Comm Inc
Synergy Concepts
System 3 Inc
TAC Solutions
Taco Power
Tact Communications Consulting
Taft Broadcasting
Taghieff Industries
Tai Hong Construction Pte Ltd
Tamuning Plaza Hotel
Tap Electric
TAPCO
Target
TAS Communications
TASC Inc
TASL Inc
Tatanka Technologies dba Demerry Communications
TBS Electronics Inc
TCT Network
TDS Baja Broadband
TDS Telecom
Team Fishel
Team Power Solutions
TeamOne Communications
Tec Pro Solutions
Tech Systems Inc
Technical Innovation
Technifab Products
TEKsystems
Telecom Sales and Service Inc
Telec Inc
Teledyne Technologies
Telepath Corp
Tele-Rad Inc
Teleaf
Telam
Teltronic Inc
Tesoro Alaska Company
Teva-Tech Services Inc
Texas A&M University
Texas Department of Public Safety
Thompson Electronics
Tim Hortons
Tipmont REMC
TOG Systems Ltd
Tomba Communications & Electronics
Tool Pouch Training School
Top Shelf Manufacturing
Toppscom PTE LTD
Toronto Police Services
Total Radio
Total Safety (H2WR Houston)
Towersystems South
Town Communications
Trace Services
Transcore
Transtector Systems
Tredger Film Products
Trek Connect
Trewhaith Electical Services
Tri Cities Communications Inc
Tri County Telephone
Tribal Employment Rights
Tribalco Inc
Tri-Co Communications Inc
Trico Industries LTD
Trinidad and Tobago Defense Force
Trinity Technology Partners
Trowbridge & Trowbridge
True North Telecom Inc
Tule River Tribal Council
Turris
Turtle Mountain Communications
TuWay Communications
TuWay Mobile Communications Inc dba Tuway Wireless
TV Warren
Twin Eagle Consulting
Two Way Radio of Carolina Inc.
Two-Way Radio Inc
Tyco Fire Protection Products
Tyco Integrated Fire & Security
UBAC Pte Ltd
Uganda TEC Electricity Transmission Co Ltd
Ultimate Knowledge
Undefined Heights Electric
Unionville Chadds Ford School
United Airlines
United Launch Alliance
United Radio Communications Inc
United States Air Force
Illinois Air National Guard
Robins Air Force Base
Sheppard Air Force Base
USAF 2d Communications Squadron
USAF March ARB
Warner Robins Air Logistics Complex
United States Army
16th TIN SIG Co
597th Maintenance Detachment
CECOM TSD
CSMS-C NY Army National Guard
Nebraska Army National Guard
Ordnance Electronic Maintenance Training Department
Tobyhanna Army Depot
US Army 518th
US Army Corps Eng
US Army Research Lab
Vermont Army National Guard
United States Army Reserve
United States Bureau of Reclamation
United States Coast Guard
USCG C3CEN VTS
United States Department of Transportation
United States Fish & Wildlife Services
United States Marine Corp
United States Marshall Services
United States Mint
United States Navy
Don FRCSW
MARPAC Code 274
NAV SEA NVWC
NAWC Lakehurst
Nawair
Naval Computer & Telecom Area Master Station
Naval Cyber Warfare Development
Naval Facilities Engineering Command SW
Naval Research Lab
Navy National Training Center
Navy Support Activity - Souda Bay
Navy Surface Warfare Center - Crane
Navy Surface Warfare Center - PCP
Navy Undersea Warfare Center
Navy Computer & Telecom Station - Sicily
Norfolk Naval Shipyard
NUWEC Keyport Detachment Hawaii
PCU Zumwalt (DDG-1000)
Space and Naval Warfare Systems Ctr (SSC) Atlantic
Where are ETA-Certified Individuals?

Where are ETA-Certified Individuals?

SPAWAR Systems Center Pacific (SSC) Pacific
Trident Training Facility Kings Bay
USAAAMDS RO
US Navy MARMC
US Navy NIIOC
USS Abraham Lincoln (CVN-72)
USS Hawaii (SSN 776)
USS Leyte Gulf (CG-55)
United States Veterans Affairs Department
United Utilities Inc
Unity School of Christianity
Universal Cabling Systems
Universidad Metropolitana
Universidad Tecnica del Nor
University of Alabama Hospital
University of California Santa Barbara
University of Central Florida
University of Mississippi Medical Center (MED-COM)
University of Stuttgart
University of Utah
Univision
US Mobile Wireless dba Day Wireless Sys San Diego
US Penitentiary Tuscon
Utah Communications
Utah County Government
UT-Battelle LLC
Utility Communications Inc
VA Pittsburgh Healthcare System
Vail Associates
Valkyrie Enterprises
Vanderbilt University
Vantage Drilling
Vectrus
Vencore Inc
Verizon Federal Network System
Verizon Telecommunications
Verizon Wireless
Versatech Automation
Veterans Assembled Electronics LLC
Victoria Shipyards Co Ltd
Video West Inc
Village of Pleasant Prairie
Vintage Security Protection One
Volcano Communications Group
Volcano Telephone
VT Group
Walker & Associates
Walmart
Walsh Electronic Security
Walt Disney World Inc
Wanzek Construction
Ward Bell Communications
Warren County Technical School
Wasco State Prison
Washington Metro Area Transit Authority
Washtee County
Watchtower Farms
Wave Broadband
Wavetronix
WComGroup
WDSL US LLC
Webpass Inc
West Rock
West Stanly County Schools
Westfield Senior Housing
Wharton County Junior College
Whidbey Telecom
White Coconut Computer Services
Whitney Solutions LLC
Willbro’s
Wind River Casino
Windmar PV
Windsor Doors
Windstream Communications
Wireless Advanced Communications
Wireless Communication & Electronics
Wireless Communications Inc
Wireless Electronics Inc
Wireless Plus Inc
Wireless Technology Equipment Co
Wireless USA
Wireless Ventures LLC DBA Amerizon Wireless
Wise Communications
Worad Inc
Workhorse Systems LLC
WP Teletronics (AB) Ltd
WPT Electronics
Wyoming Department of Transportation
Xator
Xentry
Xerox
Xfinity
Xicom Wireless
Yankee Microwave Inc
Yokogawa Corp of America

ETA Supports STEM Education

“STEM education is an interdisciplinary approach to learning where rigorous academic concepts are coupled with real-world lessons as students apply science, technology, engineering, and mathematics in a context that makes connections between school, community, work and the global enterprise enabling the development of STEM literacy and with it the ability to compete in the new economy.” (Tspros, 2009) ETA International supports the movement to keep the United States at the forefront of research, innovation, and technology.

As the need for STEM occupations continues to grow, tech-savvy skills are critical. Studies have proven that STEM workers are less likely to experience joblessness than non-STEM workers. (STEM: Good Jobs Now and for the Future, U.S. Department of Commerce, July 2011) As an association for the technician and educator, both can be assured that ETA has always integrated STEM into all of its technical certifications. This allows those who earn ETA certifications the benefit of holding valuable tools as they enter into exciting, rewarding, and innovative careers.