April 1, 2009

To:    Dr. Dan Julius, Vice President Academic Affairs and Research
       UA Systemwide Academic Council

From:  Mike Driscoll, UAA Provost

Subject: Changes to AAS, Telecommunications, Electronics, and Computer Technology in the UAA Community and Technical College

The UAA Community and Technical College (CTC) proposes to revise the existing AAS, Telecommunications, Electronics, and Computer Technology (TECT), which currently has two tracks, by splitting it into two degrees:

- AAS, Computer and Networking Technology (CNT), and
- AAS, Electronic Technology (ET).

Neither of these two programs are new. Both programs are currently tracks within the existing AAS, Telecommunications, Electronics, and Computer Technology.

The proposed action was prompted by a special program review which suggested that low enrollments in the ET track was the result of students being unable to find the program under the current name. It is expected that this action will make the program more visible and increase enrollment.

As a part of this action, CTC is also proposing to delete the existing Telecommunications and Electronics Systems Undergraduate Certificate and add an Occupational Endorsement Certificate in Electronics Technology.

The prospectus for the two AAS degrees are attached along with a proposal to delete the Electronic Systems Undergraduate Certificate.
University of Alaska New Program Approval

MAU: University of Alaska Anchorage
College: Community and Technical College
Title: Associate of Applied Science, Computer and Networking Technology
Target admission date: Fall 2009

Description of the CNT AAS:
This AAS provides entry-level skills and career education to meet the demand for well-trained technicians in the computer electronics and networking industries.

Relation to the academic mission of the university and the MAU:
This program advances the mission of the UAA Community and Technical College and responds to the needs of both students and industry.

The Computer and Networking Technology (CNT) program is not a new program, but is currently part of the Telecommunications, Electronics, and Computer Technology (TECT) program. The Electronics Technology program experienced low enrollments due to students being unable to find the program under the current name, which resulted in program admission being suspended while a special review was conducted. In fall 2008, Provost Driscoll directed the program be continued and separated from the Computer and Networking Technology program.

The following curriculum actions are proposed:
- Rename the Telecommunications, Electronics, and Computer Technology (TECT) Telecommunications and Electronics Systems (TES) track to Electronics Technology and create a separate catalog copy.
- Rename the Telecommunications, Electronics, and Computer Technology (TECT) Computers and Networking Technology Track to Computer and Networking Technology and remove the TES information.
- Delete the Telecommunications and Electronics Systems undergraduate certificate.
- Add an occupational endorsement certificate in Electronics Technology.
- Update the Electronics Technology AAS.

These curriculum actions were coordinated with Kenai Peninsula College (KPC) to ensure they would benefit Process Technology program students. KPC and UAA agreed to the current course changes and to sharing responsibility for additional course updates over the next few semesters. An advisory board has been established and has validated the attached program changes.

State and Local Needs Met:
The CNT track of the TECT AAS was created in 2001 and was updated in 2003 and again in 2006. The enrollments and graduation rates have been strong throughout its availability. Most CNT students looking for employment find an IT position before the end of their second year. The program provides employers with skilled IT employees. According to the Department of Labor and Workforce Development, network systems and data communications occupations should increase by 46% over the next ten years.

Student opportunities:
With the degree being separated from the TECT program, students will be able to find the degree more easily in the UAA catalog. Most of the students in the CNT Undergraduate Certificate program have stated that they signed up for the certificate because they didn’t see a CNT AAS program on the form.
Enrollment projections:
Over the past four years the student credit hour production for the Anchorage CNT courses have averaged 1321 SCHRS per year. That production is expected to continue or increase over the next few years.

Research Opportunities:
This AAS program will not lead to funded research or have an emphasis on research.

Fiscal Implications:
The degree name change from TECT AAS CNT Track to AAS in CNT will have no effect on the program budget or incremental impact, directly or indirectly, on other units nor on campus facilities, equipment and technologies. The following table shows the current expenses for the program. Note that table does not show the tuition revenue of approximately $186,000 generated by the 1321 SCHRS per year generated by this program.

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<tr>
<th>EXPENSE CATEGORIES</th>
<th>Budget</th>
<th>Revision</th>
<th>Activity</th>
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<th>Budget Revision</th>
<th>YTD Activity</th>
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## Faculty Matrix:

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<tr>
<th>Faculty Name, Highest Degree</th>
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<th>Courses/Credits - Fall</th>
<th>Courses/Credits - Spring</th>
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<td>Computers Networking</td>
<td>CNT-A162, CNT-A162 CNT-A264</td>
<td>CNT-A162, CNT-A165 CNT-A170, CNT-A280 CNT-A290 13 credits</td>
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<td>Brian Williams</td>
<td>Computers Networking, Electronics</td>
<td>CNT-A261, CNT-A290, ET-A166 12 credits</td>
<td>CNT-A180, CNT-A270 CNT-A276, CNT-A282 CNT-A290 13 credits</td>
<td>Assistant Professor</td>
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## Yearly Course Offering Plan:

### Fall
- CNT A160 PC Operating Systems
- CNT A162 PC Building, Upgrading, and Architecture
- CNT A165 Customer Service Fundamentals
- CNT A170 Cisco Academy Network Fundamentals
- CNT A183 Local Area Networks
- CNT A240 Windows System Essentials
- CNT A241 Administering and Supporting Windows Workstations and Server
- CNT A261 Cisco Academy Router Fundamentals
- CNT A262 Computer Technical Support
- CNT A264 Introduction to Information Security
- CNT A270 Cisco Academy Intermediate Switching and Routing
- CNT A272 Cisco Wireless Networking
- CNT A290 Selected Topics in Information Technology

<table>
<thead>
<tr>
<th>Courses/Credits - Spring</th>
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<tbody>
<tr>
<td>14 credits</td>
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### Spring
- CNT A160 PC Operating Systems
- CNT A162 PC Building, Upgrading, and Architecture
- CNT A165 Customer Service Fundamentals
- CNT A170 Cisco Academy Network Fundamentals
- CNT A180 PC Interfacing, Peripherals, Storage, and A+
- CNT A183 Local Area Networks
- CNT A240 Windows System Essentials
- CNT A242 Windows Network Infrastructure Administration
- CNT A261 Cisco Academy Router Fundamentals
- CNT A270 Cisco Academy Intermediate Switching and Routing
- CNT A271 Cisco Academy WAN Management
- CNT A276 Independent Project
- CNT A280 Server Operating Systems
- CNT A282 Work Study
- CNT A290 Selected Topics in Information Technology

<table>
<thead>
<tr>
<th>Courses/Credits - Spring</th>
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</thead>
<tbody>
<tr>
<td>13 credits</td>
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</table>
The Computer and Networking Technology (CNT) program of the Computer and Electronics Technology Department (CET) provides entry-level skills and career education to meet the demand for well-trained technicians in the computer electronics and networking industries. The CNT program offers an Occupational Endorsement Certificate in Cisco Certified Network Associate (CCNA), and an Undergraduate Certificate in Computer and Networking Technology. An Associate of Applied Science degree in Computer and Networking Technology can be earned by completing additional required technical and general education courses.

Graduates from the CNT program can be employed as skilled technical workers in fields including networking, network administration, computer technical support, computer repair and a variety of other positions in information technology.

Both the Anchorage and Matanuska-Susitna campuses offer the program and are collaborative sites for the Fairbanks-based, statewide Information Technology Specialist (ITS), which offers a certificate and an associate degree. Students should consult the CNT faculty for assistance with curriculum planning toward certifications such as A+, Net+, CCNA, ICSA Customer Service, Microsoft Certified Professional and other industry-recognized standards.

### Occupational Endorsement Certificate in CCNA

#### Certificate Outcomes

At the completion of this certificate program students are able to demonstrate:

2.  Proficiency in Cisco switch and VLAN installation and configuration.
3.  Competence in entry-level tasks of planning, design, installation, operation and troubleshooting Ethernet and TCP/IP networks.

#### Admission Requirements

See Occupational Endorsement Certificate admissions in Chapter 7 of this catalog.

#### Advising

Students should consult the CNT faculty for assistance with curriculum planning toward certifications.

#### Certificate Requirements
General University Requirements
See General University Requirements for Occupational Endorsement Certificates at the beginning of this chapter.

Major Requirements:
1. Complete the following courses:
   - CNT A170 Cisco Academy Network Fundamentals 4
   - CNT A261 Cisco Academy Router Fundamentals 4
   - CNT A270 Cisco Academy Switching and Intermediate Routing 4
   - CNT A271 Cisco Academy WAN Management 3

2. A total of 15 credits are required for the occupational endorsement certificate.

Undergraduate Certificate, Computer and Networking Technology

Certificate Description and Outcomes
This certificate program prepares students to install, configure, operate and repair networks used to connect computing and digital communications systems of various types. At the completion of the program students are able to demonstrate:
1. Proficiency in PC troubleshooting and repair.
2. Competence in entry-level tasks of planning, design, installation and troubleshooting Ethernet and TCP/IP networks.
3. Computer literacy in PC applications and operating systems.
4. Entry-level employability skills for computer and network technicians.
5. Job upgrade skills for technicians and professionals.
6. Good customer service skills.
8. Proficiency in Cisco switch and VLAN installation and configuration.

Admission Requirements
See Undergraduate certificate admissions in Chapter 7 of this catalog

Advising
Students should consult the CNT faculty for assistance with curriculum planning toward certifications.

Certificate Requirements

General University Requirements
See General University Requirements for undergraduate certificates at the beginning of this chapter.

Major Requirements:
1. Complete the following requirements (29 credits):
   - CNT A160 PC Operating Systems 3
   - CNT A162 PC Building, Upgrading, and Architecture 3
   - CNT A165 Customer Service Fundamentals 1
   - CNT A170 Cisco Academy Network Fundamentals 4
   - CNT A180 PC Interfacing, Peripherals, Storage, and A+ 4
   - CNT A183 Local Area Networks 3
   - CNT A261 Cisco Academy Router Fundamentals 4
   - CNT A270 Cisco Academy Switching and Intermediate Routing 4
   - CNT A271 Cisco Academy WAN Management 3
2. Complete 6 credits from the following courses:  
   - CNT A262 Computer Technical Support (2)  
   - CNT A264 Introduction to Information Security (3)  
   - CNT A272 Cisco Wireless Networking (3)  
   - CNT A290 Selected Topics in Information Technology (1-3)  

3. Complete 5 credits from the following courses:  
   - CNT A240 Windows System Essentials (2)  
   - CNT A241 Administering and Supporting Windows Workstations and Server (3)  
   - CNT A280 Server Operating Systems (3)  

4. Complete 3 credits from the following courses:  
   - CIOS A101A Keyboarding A: Basic Keyboarding (1)  
   - CIOS A113 Operating Systems: MS Windows (1)  
   - CIOS A130A Word Processing I: MS Word (1)  
   - CIOS A135A Spreadsheets I: MS Excel (1)  
   - CIOS A146 Internet Concepts and Applications (2)  
   - CIOS A150A Presentations: MS PowerPoint (2)  
   - CIS A105 Introduction to Personal Computers and Application Software (3)  
   - CIS A110 Computer Concepts in Business (3)  
   - CNT A290 Selected Topics in Information Technology (1-3)  

5. Complete 3 credits from the following courses:  
   - PRPE A108 Introduction to College Writing (3)  
   - ENGL A109 Introduction to Writing in Academic Contexts (3)  
   - Written communications GER  
   - Or  
   - Note: ENGL A111 required for the AAS degree.  

6. A total of 46 credits are required for the certificate.  

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**Associate of Applied Science in Computers and Networking Technology**  
**Degree Description and Outcomes**  
This associate degree prepares students to install, configure, administer, operate and repair networks used to connect computing and digital communications systems of various types. At the completion of the program students are able to demonstrate:  
1. Computer literacy in PC applications and operating systems.  
2. Entry-level employability skills for computer and network technicians.  
4. Proficiency in Cisco switch and VLAN installation and configuration.  
5. Competence in entry-level tasks of planning, design, installation, operation and troubleshooting Ethernet and TCP/IP networks.  
6. Proficiency in PC troubleshooting and repair.  
7. Competence in installation configuration and troubleshooting Microsoft operating systems.  
8. Competence in configuring and maintaining network and computer system security.  
9. Good customer service skills.  
10. The ability to think critically and solve problems.  

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**Admission Requirements**
See Associate Degree Admission Requirements in Chapter 7 of this catalog.

**Advising**
Students should consult the CNT faculty for assistance with curriculum planning toward degree.

**General University Requirements**
Complete the General University Requirements for Associate of Applied Science Degrees listed at the beginning of this chapter. (15 Credits)

**General Course Requirements**
Complete the General Course Requirements for AAS degrees listed at the beginning of this chapter.

**Major Requirements**

**Associate of Applied Science in Computer and Networking Technology (52 credits)**

1. Complete the following requirements (29 credits):
   - CNT A160 PC Operating System 3
   - CNT A162 PC Building, Upgrading, and Architecture 3
   - CNT A165 Customer Service Fundamentals 1
   - CNT A170 Cisco Academy Network Fundamentals 4
   - CNT A180 PC Interfacing, Peripherals, Storage, and A+ 4
   - CNT A183 Local Area Networks 3
   - CNT A261 Cisco Academy Router Fundamentals 4
   - CNT A270 Cisco Academy Intermediate Switching and Routing 4
   - CNT A271 Cisco Academy WAN Management 3

2. Complete 9 credits from the following courses:
   - CNT A262 Computer Technical Support (2)
   - CNT A264 Introduction to Information Security (3)
   - CNT A272 Cisco Wireless Networking (3)
   - CNT A276 Independent Project (3)
   - CNT A282 Work Study (3)
   - CNT A290 Selected Topics in Information Technology (1-3)

3. Complete 8 credits from the following courses:
   - CNT A240 Windows System Essentials (2)
   - CNT A241 Administrating and Supporting Windows Workstations and Server (3)
   - CNT A242 Windows Network Infrastructure Administration (3)
   - CNT A280 Server Operating Systems (3)

4. Complete 3 credits from the following courses:
   - CIS A185 Introduction to Programming Business Applications (3)
   - CS A101 Introduction to Computer Science (3)
   - CS A109 Computer Programming (Languages Vary) (3)
   - CS A110 Java Programming (3)
   - CS A111 Visual Basic.NET Programming (3)

5. Complete 3 credits from the following courses:
   - CIOS A101A Keyboarding A: Basic Keyboarding (1)
   - CIOS A113 Operating Systems: MS Windows (1)
6. A total of 67 credits is required for the degree.

**FACULTY**
Ray Noble, Associate Professor, afron@uaa.alaska.edu
Rex Plunkett, Assistant Professor, afgrp@uaa.alaska.edu
Brian Williams, Assistant Professor, afbkwl@uaa.alaska.edu

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### Course Descriptions

**CNT A160 PC Operating Systems**
3 credits
Develops basic understanding of command line, desktop, and server operating systems. Includes computer programming, architecture, and hardware necessary to understand the operating system interactions.

**CNT A162 PC Building, Upgrading, and Architecture**
3 credits
Describes how to evaluate, install, and troubleshoot available software and hardware computer equipment. Covers basic hardware associated with microcomputer operation including, but not limited to, motherboards, CPUs, chipsets, memory, buses, expansion slots and resource allocations. Also demonstrates and practices PC disassembly, assembly, software installations, safety and maintenance.

**CNT A165 Customer Service Fundamentals**
1 credit
Introduces basic customer service principles, including relationships, perceptions, telephone techniques, quality, ethics, record keeping, interpersonal relationships, and teamwork.

**CNT A170 Cisco Academy Network Fundamentals**
4 credits
Covers networking fundamentals and develops basic skills in designing, installing and troubleshooting local area networks. Topics include cabling, cabling closets, Ethernet technologies, management devices, protocols, subnetting, network device selection, installation and troubleshooting.

**CNT A180 PC Interfacing, Peripherals, Storage, and A+**
4 credits
Covers PC peripheral devices, auxiliary storage devices and the interfaces used to connect them to the personal computer. Also covers the fundamentals topics necessary to prepare for the Core Hardware portion of the CompTIA A+ Certification.

**CNT A183 Local Area Networks**
3 credits
Presents the fundamentals of Local Area Networking, including topologies, protocols, computer and delivery hardware, Ethernet, network operating systems, LAN assessment, and other related software. Covers the fundamental networking topics necessary to prepare for the CompTIA Net+ Exam.

**CNT A240 Windows System Essentials**
2 credits
Provides an introduction to networking concepts, features, and capabilities and their implementation within the Windows environment.
CNT A241 Administrating and Supporting Windows Workstations and Server  
3 credits
Presents concepts and skills necessary to install and configure Windows Server on stand-alone computers on client computers that are part of a workgroup or domain.

CNT A242 Windows Network Infrastructure Administration  
3 credits
Provides students with the knowledge and skills to implement and manage the network infrastructure associated with a Windows domain.

CNT A261 Cisco Academy Router Fundamentals  
4 credits
Provides details of Cisco routers and router interfaces, including router configuration, software controls, user modes, IP addressing and routing protocols.

CNT A262 Computer Technical Support  
2 credits
Develops skills necessary for evaluating and implementing various technical support functions, including hardware and software needs assessments, training development, preventive maintenance, and effective communication and documentation.

CNT A264 Introduction to Information Security  
3 credits
Provides students with an understanding of the core concepts that relate to the practice of network security. This course will help prepare students for the CompTIA Security+ exam.

CNT A270 Cisco Academy Intermediate Switching and Routing  
4 credits
Covers local area network management and provides skill development in managing traffic and network devices to ensure optimal throughput. Topics include router and switch configuration, advanced routing protocols, and identifying and resolving network congestion problems.

CNT A271 Cisco Academy WAN Management  
3 credits
Covers wide area networking services, design, and management. Topics include wide area network technology, devices, link options, frame encapsulation formats, designs, protocols and configurations.

CNT A272 Cisco Wireless Networking  
3 credits
Provides students with wireless networking fundamentals with focuses on the design, planning, implementation, operation and troubleshooting of wireless LANs. It also offers a comprehensive overview of wireless technologies and security.

CNT A276 Independent Project  
3 credits
Develops, implements, and completes a project based on a relevant technological issue. Student works closely with faculty to produce an end product and report.

CNT A280 Server Operating Systems  
3 credits
Develops Windows 2000 Server operating system basics. Topics will include installation, troubleshooting, creation and administration of users and resources and remote and internet accounts.

CNT A282 Work Study  
3 credits
Provides supervised workplace experience in industry settings. Integrates advanced level knowledge and practice to demonstrate skill competencies.

CNT A290 Selected Topics in Information Technology  
1-3 credits
Provides students with intermediate to advanced knowledge in Information Technology-related topics. Special Note: Prerequisites will vary with topic.
University of Alaska New Program Approval

MAU: University of Alaska Anchorage
College: Community and Technical College
Title: Associate of Applied Science, Electronics Technology
Target admission date: Fall 2009

Description of the ET AAS:
This AAS degree program expands the skills learned in the Electronics Technology Occupational Endorsement Certificate (OEC) to enable graduates to perform hands-on troubleshooting, maintenance, and repair of electronic systems and includes the computer and networking fundamentals required in today’s market.

Relation to the academic mission of the university and the MAU:
This program advances the mission of the UAA Community and Technical College and responds to the needs of both students and industry.

The Electronics Technology (ET) program is currently part of the Telecommunications, Electronics, and Computer Technology (TECT) program. The ET program experienced low enrollments due to students being unable to find the program under the current name, which resulted in program admission being suspended while a special review was conducted. In fall 2008, Provost Driscoll directed the program to continue, separated from the Computer and Networking Technology program and rewritten with an occupational endorsement certificate and an AAS.

The following curriculum actions are proposed:
- Rename the Telecommunications, Electronics, and Computer Technology (TECT) Telecommunications and Electronics Systems (TES) track to Electronics Technology and create a separate catalog copy.
- Rename the Telecommunications, Electronics, and Computer Technology (TECT) Computers and Networking Technology Track to Computer and Networking Technology and remove the TES information.
- Delete the Telecommunications and Electronics Systems undergraduate certificate.
- Add an occupational endorsement certificate in Electronics Technology.
- Update the Electronics Technology AAS.

These curriculum actions were coordinated with Kenai Peninsula College (KPC) to ensure they would benefit Process Technology program students. KPC and UAA agreed to the current course changes and to sharing responsibility for additional course updates over the next few semesters. An advisory board has been established and has validated the attached program changes.

State and Local Needs Met:
According to the Alaska Department of Labor, demand for electrical/electronic technicians with an associate degree will increase 17% from 2004 to 2014, from 286 employed to 334. Of more immediate concern is the age of this portion of the workforce. In 2005, 46% of these technicians were over 45 and 26% were over 50. In addition, over 26% of these technicians were non-residents of Alaska.

There is a clear demand in the state for graduates from these ET programs; however, inefficiencies in these programs’ enrollment management – recruitment/enrollment, retention, placement and follow-up – have not allowed the programs and graduates to fully connect with this need.

There is also an evident demand nationwide for electronics and telecommunications technicians holding post-secondary certificates and degrees. For example, the National Science Foundation (NSF)
is providing approximately 75 grants totaling $46 million over the next three fiscal years under the Advanced Technological Education (ATE) initiative. These grants are geared to two-year colleges focused on educating technicians in highly technical career fields such as electronics and telecommunications.

**Student opportunities:**
With the degree being separated from the TECT program, students will be able to find the OEC and degree more easily in the UAA catalog. This program also enables students in the KPC Process Technology program to complete courses related to their program.

**Enrollment projections:**
Once admission to the program reopens and appropriate marketing materials are developed, program admissions are projected to be approximately 10 students per year. Many courses in this OEC are used by other programs such as Process Technology, so course enrollments are likely to be higher.

**Research Opportunities:**
This AAS program will not lead to funded research or have an emphasis on research.

**Fiscal Implications:**
There will not be an incremental increase in expenses as this program already existing as a track of an existing degree. Resources, technology, and facilities are already in place. Program expenses are expected to remain the same for at least the next three years; however, revenue is expected to increase as enrollments increase due to increased program visibility. The following table shows the current expenses for the program. Note that table does not show the tuition revenue or approximately $41,000 generated by the 290 anticipated SCHRS per year generated by this program.

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<td>Commodities</td>
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<td>Items for Resale</td>
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<td>Capital (Equipment)</td>
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<td>Student Aid</td>
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<td>Other</td>
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<td>0</td>
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<td>40,294</td>
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<th>REVENUE CATEGORIES</th>
<th>Adjusted Budget</th>
<th>Budget Revision</th>
<th>YTD Activity</th>
<th>Revenue Adjust</th>
<th>Projected Revenue</th>
<th>(Over)/Under Budget</th>
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<td>9102-9108</td>
<td>0</td>
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<td>(250)</td>
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<td>0</td>
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<tr>
<td>TOTAL REVENUE</td>
<td>775</td>
<td>0</td>
<td>1,025</td>
<td>0</td>
<td>0</td>
<td>(250)</td>
</tr>
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</table>
As the electronic systems and equipment that power our world become more complex, the expertise of electronics and computer technologies specialists is increasingly vital. The Electronics Technology (ET) program provides entry-level skills and career education to meet the demand for well-trained technicians in the telecommunications and electronics industries. The program offers an Occupational Endorsement Certificate (OEC) in Electronics Technology and an Associate of Applied Science degree in Electronics Technology.

With careers in electronics and computer technology exceeding the average growth rate for new careers, opportunities are available in a wide variety of industries. ET program graduates can be employed as skilled technical workers in fields including communications, security, microchip manufacturing and electronic equipment repair in private industry as well as municipal, state and federal agencies.

**OCCUPATIONAL ENDORSEMENT CERTIFICATE, ELECTRONICS TECHNOLOGY**
Provides fundamental skills required for entry into the electronics field.

**CERTIFICATE OUTCOMES**

At the completion of this certificate program students will demonstrate:
1. Proficiency in electronic theory, equipment maintenance and troubleshooting.
2. Proficiency in electronic communications and telecommunications.
3. Good customer service skills.

**Admission Requirements**
See Occupational Endorsement Certificate admissions in Chapter 7 of this catalog.

**Advising**
Students should consult ET faculty for assistance with course planning toward the OEC.
Certificate Requirements

General University Requirements
See General University Requirements for OECs at the beginning of this chapter.

Major Certificate Requirements:
1. Complete the following courses:
   - ET A160 DC Electrical Systems 3
   - ET A161 DC Lab 1
   - ET A162 AC Electrical Systems 3
   - ET A163 AC Lab 1
   - ET A166 Technical Calculations and Applications 2
   - ET A180 Semiconductor Devices 4
   - ET A181 Digital Electronics 4
   - ET A182 Applied Integrated Circuits 2
   - ET A184 Telecommunications 2
   - ET A260 Instrumentation and Control Processes 3
   - ET A262 Transmitters, Receivers and Advanced Communications 3
   - CNT A165 Customer Service Fundamentals 1

2. A total of 29 credits is required for this OEC.

ASSOCIATE OF APPLIED SCIENCE, ELECTRONICS TECHNOLOGY
The ET AAS degree program expands the skills learned in the OEC to enable graduates to perform hands-on troubleshooting, maintenance, and repair of electronic systems and includes the computer and networking fundamentals required in today’s market.

DEGREE OUTCOMES

Upon completion of this program, students will demonstrate:
1. Proficiency in electronic theory, equipment maintenance and troubleshooting.
2. Proficiency in electronic communications and telecommunications.
3. Computer literacy in PC hardware, PC applications and operating systems.
4. Good customer service skills.

Admission Requirements
See Associate Degree Admission Requirements in Chapter 7 of this catalog.

Advising
Students should consult ET faculty for assistance with curriculum planning.

General University Requirements
Complete the General University Requirements for Associate of Applied Science Degrees listed at the beginning of this chapter.

General Course Requirements
Complete the General Course Requirements for Associate of Applied Science Degrees listed at the beginning of this chapter.

**Major Degree Requirements**

1. Complete the Occupational Endorsement Certificate in Electronics Technology 29

2. Complete the following six credits:
   - CNT A160  PC Operating systems 3
   - CNT A162  PC Building, Upgrading, and Architecture 3

3. Complete 7 credits from the following courses:
   - CNT A170  CISCO Academy Network Fundamentals (4)
   - CNT A180  PC Interfacing, Peripherals, Storage, and A+ (4)
   - CNT A183  Local Area Networks (3)
   - ET A276  Independent Project (3)
   - ET A282  Work Study (3)
   - ET A290  Selected Topics in Electronics Technology (1-4)
   - ET A350  Federal Licensing Preparation (4)

4. Complete 3 credits from the following courses:
   - CIOS A101A  Keyboarding A: Basic Keyboarding (1)
   - CIOS A113  Operating Systems: MS Windows (1)
   - CIOS A125A  Electronic Communications I: MS Outlook (1)
   - CIOS A130A  Word Processing I: MS Word (1)
   - CIOS A135A  Spreadsheets I: MS Excel (1)
   - CIOS A146  Internet Concepts and Applications (2)
   - CIOS A150A  Presentations: MS PowerPoint (2)
   - CIOS A262A  Professional Development (3)
   - CIS A105  Introduction to Personal Computers and Application Software (3)
   - CIS A110  Computer Concepts in Business (3)

5. A total of 60 credits is required for the degree.

**FACULTY**
Mark Bothum, Assistant Professor, afmsb1@uaa.alaska.edu

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**Course Descriptions**

**ET A160 DC Electrical Systems** 3 credits
Covers basic D.C. electrical concepts, definitions, laws and applications. Introduces passive electrical components, schematic symbols, wiring diagrams, power sources, and distribution systems.
ET A161 DC Lab  
1 credit  
Presents methods of safe and accurate measurement of D.C. electrical quantities using basic electrical test equipment. Covers equipment connection, testing methods, and operation to observe electrical component characteristics to troubleshoot defective circuits. Power sources, distribution systems, schematic and writing diagrams will also be covered.

ET A162 AC Electrical Systems  
3 credits  
Examines theory and application of basic concepts, definitions and laws governing alternating current signal and power sources. Includes AC waveforms, sources, components, wiring diagrams, schematic symbols, and analysis of AC power distribution.

ET A163 AC Lab  
1 credits  
Presents measurement of AC electrical quantities using basic electrical test equipment. Covers AC circuit troubleshooting through proper equipment connections, testing and operations. Power sources, distribution systems, schematic, and wiring diagrams will also be covered.

ET A166 Technical Calculations and Applications  
2 credits  
Presents applied calculations for students in technical fields. Covers basic arithmetic, conversions, solving equations, logarithms, multinomial equations, graphs and applied basic concepts of geometry, trigonometry, and statistics.

ET A180 Semiconductor Devices  
4 credits  
Introduces semiconductor fundamentals and parameters. Covers semiconductor physics, diode and transistor characteristics and applications. Provides methods for analyzing and troubleshooting complex semiconductor circuitry. Component coverage includes specialty diodes, multi-layer control devices, bipolar transistors, JFETs, MOSFETs, and multistage coupling devices.

ET A181 Digital Electronics  
4 credits  
Presents digital electronics concepts, logic families and applications. Provides methods for analyzing and troubleshooting complex digital circuitry. Topics will include binary numbers, digital logic gates, flip-flops, registers, counters, shift registers, logic interfacing, logic families, multivibrators, timers, analog and digital converters, memory devices and programmable logic devices.

ET A182 Applied Integrated Circuits  
2 credits  
Presents the electrical characteristics and applications of the ideal operational amplifier. Topics include input and output characteristics, comparators, amplifiers, signal/function generation, active filtering and power supply regulation.

ET A184 Telecommunications  
2 credits  
Presents and examines basic telecommunication and data communication concepts and equipment. Topics include history, transmission methodology, multiplexing, media, data conversion, A/D and D/A, protocols, interfacing, direction control, telecommunication equipment, switching systems, subscriber services, and distribution techniques.
ET A260 Instrumentation and Control Processes 3 credits
Covers theory of measurement, control, and data acquisition. Includes instrumentation circuitry, mechanical control elements, computer control processes, sensors, transducers, IP interfacing and applications.

ET A262 Transmitters, Receivers and Advanced Communications 3 credits
Explores the methods and techniques used in transmission and reception of AM, FM and SSB signals. Emphasizes antennas, transmission lines, signal propagation, transmitter and receiver circuitry, alignment and troubleshooting. Also examines communications technology including microwave, radar, satellite, mobile and cellular telephone, video, and other wireless systems.

ET A276 Independent Project 3 credits
Develops, implements, and completes a project based on a relevant technological issue. Student works closely with faculty to produce an end project and report.

ET A282 Work Study 3 credits
Provides supervised workplace experience in industry settings. Integrates advanced level knowledge and practices to demonstrate skill competencies.

ET A290 Selected Topics in Electronics Technology 1–4 credits
Offers selected topics in electronics pertaining to state-of-the-art technology and trends. Course content is determined by current trends, new technologies, and student and employer needs.
Special Note: Prerequisites may be imposed depending on topic.

ET A350 Federal Licensing Preparation 4 credits
Analysis of avionics systems, marine communications, global marine distress safety systems, federal rules and regulations for operators and technicians. Synthesizes knowledge and skills in preparation for taking the federal communications commission (FCC) licensing exam.

Four-year course offering plan:
Note: All courses are offered every year.

Spring:
ET A180 Semiconductor Devices
ET A182 Applied ICs
ET A184 Telecommunications
ET A262 Transmitters, Receivers, and Advanced Communications
ET A260 Instrumentation and Control Processes
ET A276 Independent Project
ET A282 Work Study

Fall:
ET A160 D.C. Electrical Systems
ET A161 D.C. Lab
ET A162 A.C. Electrical Systems
ET A163 A.C. Lab
ET A166 Technical Calc & Applications
ET A181 Digital Devices
ET A290 Selected Topics in Electronics Technology
University of Alaska Board of Regents  
Program Deletion Summary

MAU: University of Alaska Anchorage  
College: Community and Technical College  
Title: Undergraduate Certificate in Telecommunications and Electronics Technology  
Target deletion date: Fall 2009

Rationale for deleting the program

The Electronics Technology program is currently part of the Telecommunications, Electronics, and Computer Technology program. Due to low enrollments and other factors a special review was ordered.

The review triggered the following proposed changes:

- Renamed the Telecommunications, Electronics, and Computer Technology (TECT) Telecommunications and Electronics Systems (TES) track to Electronics Technology, created a separate catalog copy and updated the AAS degree requirements.
- Added an Occupational Endorsement Certificate (OEC) in Electronics Technology.
- Renamed the Telecommunications, Electronics, and Computer Technology (TECT) Computers and Networking Technology Track to Computer and Networking Technology and removed the TES information.
- Because the 29-credit OEC is directly articulated with the 60-credit AAS, it is proposed that the Undergraduate Certificate in Telecommunications and Electronics Systems be deleted.

The ET program suffered from low enrollments due to students being unable to find the program under the current name. Coordination with Kenai Peninsula College (KPC) indicated a need to align ET courses for Process Technology students. KPC and UAA agreed to the current course changes and to sharing responsibility for additional course updates over the next few semesters. All active students currently admitted to the program are finishing the degree requirements and are being actively advised.

Concurrence of appropriate advisory councils

An advisory board was established for the two new programs. The board they concur with the proposed deletion of the undergraduate certificate.