

**ELECTRONICS AND COMPUTER HARDWARE TECHNOLOGY
PROGRAM REVIEW
2011-2012**

1. Overview of the Program/Department

- a) Provide a brief description of the program/department, including the program's mission statement

Department Mission Statement

The Electronics and Computer Hardware Technology Department focus is directed at providing highly educated technicians for the engineering technology, manufacturing, and service industries. We pride ourselves in the partnerships we have with many diverse local industries which ensures that the course content and emphasis is applicable to the ever-changing high tech career field. The goal of this department is to provide an education to our students that are directly applicable to problems and situations encountered in real life and thus foster a successful career.

Description of Program

We are the only remaining electronics program west of the 605 Freeway. In essence we are the only regional community college general electronics program in existence. The Electronics and Computer Hardware Technology Department offers fourteen general and specialized electronics courses.. Most students will be able to complete various certificates and a possible AS degree within a two year period. There're are two distinct pathways for most of these certificates and degrees, The two areas of study emphasize either general electronics technology or digital systems technology. The program employs three full time and one part time faculty to prepares students for either direct entry level employment , industry skill upgrades, or possible transfer to a four year industrial technology or engineering technology programs offered at CSULB, CSULA, Cal Poly Pomona. Students acquire proficiencies in: assembling analyzing, Testing, and troubleshooting, both analog and digital systems. Students are trained to use industry standard skill sets such as: the use and correct application of modern electronic test equipment, symbols and components, safety, and team building. As technology changes the program both upgrades current courses as well introducing new focused courses

b) Describe the degrees/certificates offered (when applicable)

The electronics and computer hardware technology offers two AS Degree options and three Certificates of Achievement, and five Certificates of Accomplishment

AS Degrees :

Electronics Technology (31-33 units)
Computer Technology (26-28 units)

Certificates of Achievement:

Electronic Engineering Technician (30-34 units)
Computer Hardware Electronic Technician (29-31 units)
Industrial Computer Control Technician (34-36 units)

Certificates of Accomplishment :

Electronic Technician Option (16 units)
Computer Hardware Technology (15 units)
CompTIA Computer Hardware Technician (12 units)
Robotics (16 units)
Power line Industry Readiness (14 units)

c) Discuss the status of recommendations from the prior Program Review Status of Previous Recommendations (Program Review 2007-2002008)

1. The College's Director of Safety and Health should help the department identify and inventory safety problems in all Electronic labs so these problems can be resolved as soon as possible.

Status: The recommendations have been carried out in part. Lighting and electrical problems have been mainly resolved. Still there's a problem with metal light reflectors coming down, potentially injuring staff/students. The metal reflectors are being removed The status of the building ventilation system remains the same. Currently, the college has stopped investing in this facility for non-safety related repairs. The plan is divert monies to the new facility, when built.

2. The department should consider establishing apprenticeships and internships. An apprenticeship program to help those students with little or no experience, would make ECC's electronic program much more competitive with sister campuses who offer such services

Status: The recommendations have been carried out in part. Summer 2011, Utility driven “boot-camp” was offered. 24 student a projected to complete this course. The graduates will go on to potentially complete a “skills certificate” in Power Line Technology.

3. Apprenticeships

- 1) Southern California Edison Internship
- 2) Electronic courses used to fulfill part of the Mfg. Tech Apprenticeship
- 3) Interns developed through the Specialty Beverage Association and ECC’s ,“BEST” Program
- 4) Electronic courses used to fulfill part of the Hohn Furniture Apprenticeship
- 5) Internships with Southern California Edison
- 6) Department faculty, in cooperation with the division dean, should take steps to ensure that the “long-term” needs of the program are reflected in the College’s five-year educational, technology, and capital-construction master plans.

Status: The recommendations have been carried out in part only 5&6

4. The department has a substantial need for updated instructional equipment and software. Faculty should continue to address the near-term requirements of the program through the “Academic Technology Committee and other sources of funding. These sources of money include VTEA, proceeds from Contract Ed, and from various types of Grants

Status: The recommendations has been partially carried out

The ECHT department was tasked in participating in a “Green, Sustainable, Energy Program”. Although some faculty did attend various workshops, there wasn’t true focus on institutional funding to support this program. In many cases, training, and equipment cost hampered the program’s development To get this and other programs off the ground, there needs be a consorted effort with the Grant Writer.

5. The new El Camino grants officer should meet with department faculty to discuss sources of funding for conferences, workshops, and staff development

Status: Funds have not been allocated has not been carried out

6. The Validation Committee identified a number of activities extending beyond the classroom that contribute to the success of the program and that the faculty lack the time to undertake. These include: recruiting visits to local high schools, develop programs to promote and do “follow-up” research on graduates of the program. Faculty should continue to work with the division dean to find ways in which the need for these activities can be met.

Status: Funds have not been allocated has not been carried out

Faculty should work with the appropriate El Camino office, or offices, to improve advance planning for conference attendance, reimbursement, and provide advance of conference an workshop expenses where this is feasible

Status: Funds have not been allocated has not been carried out

7. The department should consider offering a variety of specialized courses that meet the current needs of its students and local industries.

Status: The recommendations have been carried out in part

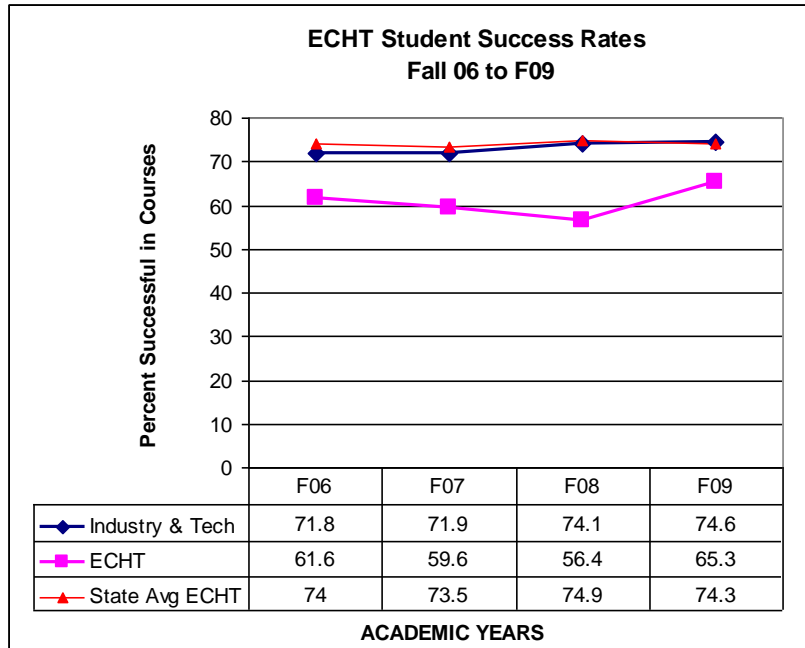
We have developed: Power Line Technology, Computer Security/Forensics, and Microcontroller courses

2. Analysis of Institutional Research Data (include IR data charts)

a) Provide and analyze the following statistics/data:

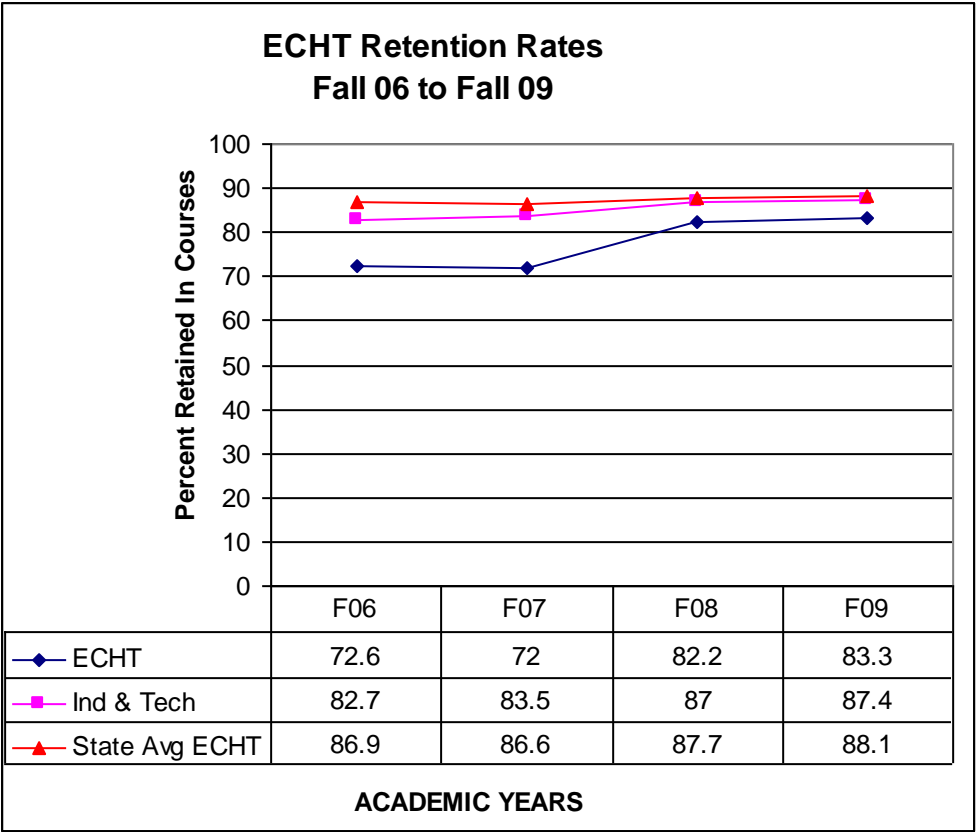
Course grade distribution; success and retention rates Given the premise, that a student's success can be interrupted by many factors students receiving a grade “A” to “C” would be considered “successful”.

1.

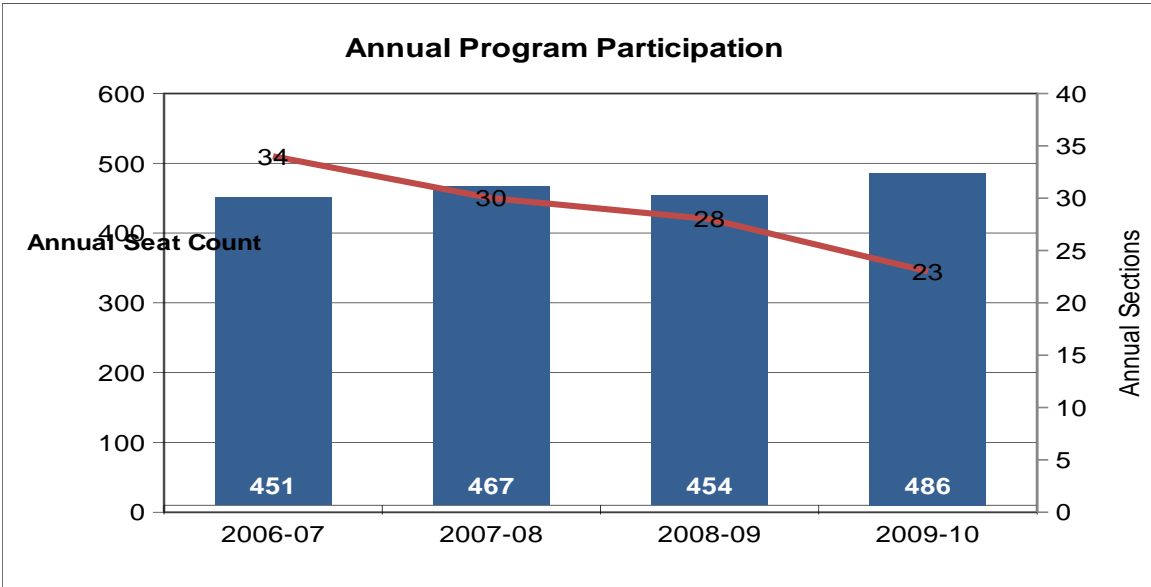


The chart below compares the Retention Rates, ECHT, Ind. Tech , and State Averages for similar programs. As you can see, the Retention Rate for the ECHT Program has steadily improved F06 – F09. This continuous improvement will eventually put the ECHT Dept. inline with both state and Ind. Tech averages. Some reasons for increased retention:

1. Some students are required to complete either a certificate by their employers.
2. Some students tended to stay engage in a particular section to qualify for pre-employment
3. A better prepared student enrolling in department courses.



2. Enrollment statistics with section and seat counts and fill rates
 The chart below show that we are serving more students win fewer section offerings



3. Scheduling of courses (day vs. night, days offered, and sequence)

Course	Maximum Number of Students per Section	F06	Sp07	F07	Sp08	F 08	Sp09	F09	Sp10	F10
ECHT 11	26	2d 1e	2d 1e	2d 1e	2d 1e	1d 1e	2d 1e	2d 1e	2d 1e	2d 1e
ECHT 110	26	1d	-	1d	1e	1d	1e	-	1d	1e
ECHT 112	26	-	-	-	-	-	-	-	-	-
ECHT 120	26	1e (combo)	1d	1e	1d	-	1d	-		1e
ECHT 122	26	-	-	-	1e	-	-	-	-	1e
ECHT 124	26	1e (combo)	-	-	1e	1d	-	1e	-	-
ECHT 130	26	1e	1d	1e	1d	1e	1d	1e	1d	1e
ECHT 131	26	1d	1e	-	-	-	-	-	-	-
ECHT 140	26	1d	1d 1e	1d	1d 1e	1d	1d 1e	1d	1d 1e	1d
ECHT 142	26	1e	1e	1e	1e	1e	1e	1e	1e	1e
ECHT 144	26	1e	-	1e	-	1e	-	1e	-	1e
ECHT 20	26	1e	-	-	-	-	-	-	-	-
ECHT 22	26	1e	1d	1e	1d	1e	1d	1e	1d	1e
ECHT 191	26	-	-	-	-	-	-	-	-	-
ECHT 192	26	-	-	-	-	-	-	1e	-	-
ECHT 62	26	-	-	-	-	1d	-	-	-	-
ECHT 95ABCD	4	-	-	-	-	-	-	-	-	-
ECHT 99ABC	4	-	-	1d	-	-	-	-	-	-
ECHT 146	26									
ECHT 148	26									
Totals Sections		13	10	11	12	11	10	10	9	11

4. Improvement rates (when applicable)

Because of the tightness in scheduling, the only silver lining, students are still able to complete the requirements for both certificates and degrees. Full-time students can reasonably finish both Program Certificates within two years. Because of the GE requirements, most of our AS candidates require 3-4 years . Like all other ECC students pursuing an AS degree, students must compete like every other student for GE sections. A additional problem with AS degree completers, the requirement for college level Algebra and Intermediate Algebra requirement for graduation.

5. Additional data compiled by faculty

Because of scheduling restraints, we have decided to schedule most ECHT courses on an alternating schedule. The above table illustrates the current scheduling strategy.

b) List related recommendations (when applicable)

Students should have the ability to couple certificates of achievements into program and AS Degree.

Faculty is concerned that some students have difficulty in finishing the “core “program in two year timeframe. Because of scheduling restrictions, a student enrolling in and then dropping ECHT 120, 122, and 124 will have to wait, sometimes up to two semesters until the courses are offered again. One of the reasons for that students drop is that sometimes they have weak or distant background in the fundamentals of electronics. Most ECHT instructors encourage students to make use of instructors’ office hours as well as of the tutoring services offered at the library. ECHT faculty continue to evaluate pedagogical methodology and communicate frequently with colleagues to share ideas on how to present certain topics to students and on how to improve the teaching of those topics. ECHT faculty agree that competent teaching requires commitment and hard work on the part of the teacher. Lack of enough time or motivation of students to do the work is another reason for not succeeding in most Electronics courses.

ECHT instructors agree that most student should take ECHT 11, Introduction to electronics before enrolling an any of our advanced courses. Those student who take ECHT 11 have a higher success rate than those who do not. There was a decrease in success rate in ECHT11 offerings in fall 2007 and fall 2008. ECHT140, Computer Systems and Hardware I experienced a decline in success rate in fall of 2009. Over the past two semesters, the student persistence rates has dropped off for ECHT 120,122,124.No clear trend or explanation is obvious. Faculty has continued to maintain high standards to better prepare students for the workplace and/or transfer to local universities. Lower retention and success rates are expected in our basic courses, but the reason for the drop in both, retention and success rate in 2008. One possible explanation, students are exploring various vocational interests and options. The success rate for all the courses for fall 2009 averages 65.3%.

Curriculum

3.

- a) **Provide the curriculum course review timeline to ensure all courses are reviewed at least once every 6 years.**

Course	Approval Date	Anticipated Review Date
ECHT 11	July 1, 2009	Spring 2014
ECHT 110	July 1, 2009	Spring 2014
ECHT 120	July 1, 2009	Spring 2014
ECHT 122	July 1, 2009	Spring 2014
ECHT 124	July 1, 2009	Spring 2014
ECHT 130	July 1, 2009	Spring 2014
ECHT 140ab	July 1, 2009	Spring 2014
ECHT 142ab	July 1, 2009	Spring 2014
ECHT 144ab	Fall 2009	Spring 2014
ECHT 146ab	Feb 16 2010	Spring 2014
ECHT 148ab	Feb 16, 2010	Spring 2014
ECHT 191ab	July 1, 2009	Spring 2014
ECHT 192ab	July 1, 2009	Spring 2014
ECHT 22	July 1, 2009	Spring 2014

- b) **Explain any course additions to current course offerings**

Through a grant process, local industry has asked us to develop for credit, content specific courses for their industry. Three courses have been developed and approved for offering.

Electronics and Computer Hardware Technology 62 Intro to Power Line Tech 2 units
Electronics and Computer Hardware Technology 64 Electrical Power Ind. Safety 2 units
Electronics and Computer Hardware Technology 68 power Line Transmission 3 units

c) Explain any course deletions from current course offerings

The ECHT department decided to deactivate three courses that were chronically under-enrolled

ECHT courses that have been deactivated are:

ECHT 131 Advanced Digital Systems 3 units

ECHT112 Advanced DC and AC Circuits 3 units

ECHT 20 Basic Mathematics for Electronics 2 units

d) Have all courses that are required for your program's degrees and certificates been offered during the last two years? If not, has the program established a course offering cycle? Yes

e) Discuss any concerns regarding department/program's courses and their articulation

Since our last Program Review, we finally have a permanent Articulation Officer. The ECHT Program has worked to develop Articulation Agreements with both CSULA and CSULB. Currently, CSULA will accept a 20 unit block for lower division transfer whereas CSULB will only accept ECHT 110 and 130

f) Discuss the degrees, certificates, and licensure exams (when applicable). If few students receive degrees or certificates or if few students pass the licensure exam, should the program's criteria or courses be re-examined?

AS Degrees :

Electronics Technology (31-33 units) Prepares students to either transfer to CSU, majoring in either Engineering Technology or Industrial Technology, or work as an Engineering Technician (Entry Level)

Computer Technology (26-28 units) Prepares students to work as a Systems/Network Technician. Also, students completing this program usually take and pass industry recognized exams such as: CompTIA A+ and Net+

Certificates of Achievement:

Electronic Engineering Technician (30-34 units) Prepares students to either transfer to CSU, majoring in either Engineering Technology or Industrial Technology, or work as an Engineering Technician (Entry Level)

Computer Hardware Electronic Technician 29-31 units) Prepares students to work as a Systems/Network Technician. Also, students completing this program usually take and pass industry recognized exams such as: CompTIA A+ and Net+

Industrial Computer Control Technician (34-36 units) Prepares students to either transfer to CSU, majoring in either Engineering Technology or Industrial Technology, or work as an Automation/Robotic Technician (Entry Level)

Certificates of Accomplishment : Local “Basic Skills” Certificates

Electronic Technician Option (16 units)
Computer Hardware Technology (15 units)
CompTIA Computer Hardware Technician (12 units)
Robotics (16 units)
Power line Industry Readiness (14 units)

g) **List related recommendations (when applicable)** None

4. Student Learning Outcomes (SLOs)

a) List each course and program level SLO in the discipline

All ECHT courses have a current SLO statement.. The program currently utilizes three program assessments to assess students on the program exit skills that a individual will attain. Currently, ECHT 11, 110, and 22 have course assessments completed.

ECHT 11 Introduction to Electronics

This learning activity introduces and reinforces techniques that the student will use to measure: AC/DC Voltages and Currents, and Resistance, using both a Bench and Portable DMM

ECHT 110**DC and AC Circuits**

This learning activity introduces and reinforces techniques that the student will use to measure: AC/DC Voltages and Currents, and Resistance, using both a Bench and Portable DMM

Students will use a Electronic Simulation Software Package(similar to Multi-Sim or Spice) to supplement both the understanding and analysis of Direct and Alternating Current Circuits.

ECHT 120**Semiconductor Circuits 1**

Given a schematic diagram, students will be able to assemble, test and measure the circuit for its operational parameters.

ECHT 122**Semiconductor Circuits II**

Given a schematic diagram, students will be able to assemble, test and measure the circuit for its operational parameters.

ECHT 124**Operational Amplifiers and Linear Integrated Circuits**

Given a schematic diagram, students will be able to assemble, test and measure the circuit for its operational parameters.

ECHT 130**Digital Systems and Computer Logic I**

Given a schematic diagram, students will be able to assemble, test and measure the circuit for its operational parameters.

ECHT 140ab**Computer Systems and Hardware I**

Students will assemble and maintain a course notebook covering Basic Computer Repair. The course notebook will be divided into five sections. Students will be responsible to accurately maintain the five sections of the course notebook according to a set of instructions.

The course notebook is used to determine and record the successfully earned points that the student has received. These points are then used to determine if the student has earned either a passing or a failing grade in the course

ECHT 142ab**Computer Systems and Hardware II**

Students will assemble and maintain a course notebook covering Advanced Computer Repair. The course notebook will be divided into five sections. Students will be responsible to accurately maintain the five sections of the course notebook according to a set of instructions. The course notebook is used to determine and record the successfully earned points that the student has received. These points are then used to determine if the student has earned either a passing or a failing grade in the course

ECHT 144ab**A+ Certification Preparation for Computer Hardware Systems**

Students will assemble and maintain a course notebook covering topics and techniques for the preparation of the CompTIA A+ Certification Exam. The course notebook will be divided into five sections. Students will be responsible to accurately maintain the five sections of the course notebook according to a set of instructions. The course notebook is used to determine and record the successfully earned points that the student has received. These points are then used to determine if the student has earned either a passing or a failing grade in the course

ECHT 146ab**CompTIA Network+ Certification Preparation for Computer Hardware Systems**

Students will assemble and maintain a course notebook covering topics and techniques for the preparation of the CompTIA Network+ Certification Exam. The course notebook will be divided into five sections. Students will be responsible to accurately maintain the five sections of the course notebook according to a set of instructions. The course notebook is used to determine and record the successfully earned points that the student has received. These points are then used to determine if the student has earned either a passing or a failing grade in the course

ECHT 148ab
CompTIA Security+ Certification
Preparation for Computer Hardware
Systems

Students will assemble and maintain a course notebook covering topics and techniques for the preparation of the CompTIA Security Plus+ Certification Exam. The course notebook will be divided into five sections. Students will be responsible to accurately maintain the five sections of the course notebook according to a set of instructions. The course notebook is used to determine and record the successfully earned points that the student has received. These points are then used to determine if the student has earned either a passing or a failing grade in the course

ECHT 22
Basic Electronic Fabrication

The learning activity is to design a functional PWB(Printed Wire Board)that is able to support both electrical and mechanical requirements for all components needed to assemble a PWB for a Low Voltage Power Supply.

ECHT 191ab
Introduction to Microprocessors
and Interfacing

Given a schematic diagram, students will be able to assemble, test and measure the circuit for its operational parameters.

ECHT 192ab

Robotics and Machine Control

Given a Microcontroller schematic diagram, students will be able to assemble, test and measure the circuit for its operational parameters

Provide a timeline for the four-year cycle for course and program level SLO assessments

SLO and Assessment Timeline: Four-Year Cycle

Program Name	Electronics and Computer Hardware Technology
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SLO Assessment Timeline: Create Your 4-Year Assessment Plan

Directions: Starting in academic year 2011-2012, SLOs will be assessed over a four-year cycle at ECC. Because program review will start occurring in calendar years (i.e. Spring to Fall semester), the grid below is organized by calendar year rather than academic year. Plan out your program's assessments so that all SLOs (both course- and program-level) are assessed at least once every four years.

Year	Semester	Course-Level SLOs Assessed	Program-Level SLOs Assessed
Year 1 of 4-Year SLO Cycle <i>(3 years before Program Review)</i>	Spring Year 1	<u>ECHT 11</u> Learning Activity introduces and reinforces techniques that the student will use to measure: Series, Parallel, and Series/Parallel AC/DC voltages and Currents, and Resistance using both a Bench and Portable DMM	Learning Activity introduces and reinforces techniques that the student will use to measure: AC/DC voltages and Currents, and Resistance using both a Bench and Portable DMM
	Fall Year 1	<u>ECHT 110</u> Students will use Electronic Circuit Simulation Software similar to Multisim or Pspice to supplement the understanding and analysis of Direct and Alternating Current circuits.	None
Year 2 of 4-Year SLO Cycle <i>(2 years before Program Review)</i>	Spring Year 2	<u>ECHT 22</u> The learning activity is to design a functional PWB (Printed Wire Board) that is able to support both electrical and mechanical requirements for all components needed to assemble a PWB for a Low Voltage Power Supply	Given a schematic diagram, students will be able to assemble, test, and measure the circuit for its operational parameters
	Fall Year 2	<u>ECHT120</u> Given a schematic diagram, students will be able to assemble, test, and measure the circuit transistor for its operational parameters	Learning Activity introduces and reinforces techniques that the student will use to measure: AC/DC voltages and Currents, and Resistance using both a Bench and Portable DMM
Year 3 of 4-Year SLO Cycle <i>(1 year before Program Review)</i>	Spring Year 3	<u>ECHT122</u> Given a schematic diagram, students will be able to assemble, test, and measure the Amplifiers circuit for its operational parameters	None
	Fall Year 3	<u>ECHT 140</u> Students will assemble and maintain a computer repair notebook. The course notebook will be divided into “five “ sections. The Student will be responsible to accurately maintain the “five” sections of their course notebook according to a set of instruction. The course notebook is used to determine and record successfully earned points that the student has received. These points are then used to determine if the student has earned either a passing or failing grade in the course	Learning Activity introduces and reinforces techniques that the student will use to measure: AC/DC voltages and Currents, and Resistance using both a Bench and Portable DMM

<p style="text-align: center;">Year 4 of 4-Year SLO Cycle <i>(Year of Program Review)</i></p>	<p style="text-align: center;">Spring Year 4</p>	<p><u>ECHT 142</u> Students will assemble and maintain a Advanced Computer Repair course notebook. The course notebook will be divided into “five “ sections. The Student will be responsible to accurately maintain the “five” sections of their course notebook according to a set of instruction. The course notebook is used to determine and record successfully earned points that the student has received. These points are then used to determine if the student has earned either a passing or failing grade in the course</p>	<p>Learning Activity introduces and reinforces techniques that the student will use to measure: AC/DC voltages and Currents, and Resistance using both a Bench and Portable DMM</p>
	<p style="text-align: center;">Fall Year 4</p>	<p><u>ECHT 144</u> Students will assemble and maintain a course notebook to be used for A+ test prep. The course notebook will be divided into “five “ sections. The Student will be responsible to accurately maintain the “five” sections of their course notebook according to a set of instruction. The course notebook is used to determine and record successfully earned points that the student has received. These points are then used to determine if the student has earned either a passing or failing grade in the course</p>	<p>Given a schematic diagram, students will be able to assemble, test, and measure the circuit for its operational parameters</p>

Note: The schedule below reflects the best case scenario Advanced courses such as : 122,124,146, 148, 191,and 192 will be offered once in a possible two year cycle

Course	Assessment I	Assessment II
ECHT 11	Fall 2012	Fall 2014
ECHT 110	Fall 2012	Fall 2014
ECHT 120	Spring 2013	Spring 2015
ECHT 122	Fall 2012	Fall 2014
ECHT 124	Spring 2013	Spring 2015
ECHT 130	Fall 2012	Fall 2014
ECHT 140ab	Fall 2012	Fall 2014
ECHT 142ab	Spring 2013	Spring 2015
ECHT 144ab	Fall 2012	Fall 2014
ECHT 146ab	Spring 2013	Spring 2015
ECHT 148ab	Spring 2015	Spring 2017
ECHT 191ab	Fall 2012	Fall 2014
ECHT 192ab	Spring 2015	Spring 2017
ECHT 22	Fall 2012	Fall 2014

- b) **Describe the assessment results and explain the recommended/implemented changes resulting from course and program level SLO assessment. Analyze the changes that were implemented.**

ECHT 11

Introduction to Electronics

This learning activity introduces and reinforces techniques the student will use to measure: AC/DC Voltages and Currents, and Resistance, using both a Bench and Portable DMM

Assessment: The student will be assessed twice during the course of the semester. Each practicum will involve one DC and another AC circuit, pre -experienced through either lab activities or demonstration. Students will be evaluated on: electrical quantity, quantity reporting, and measuring techniques.

Te rating levels: 30% electrical quantity, 30% quantity reporting, and 40% measuring techniques. Since this is a beginning course, I feel comfortable with the results.

Course/Program Assessment Results: The majority of the participants reached a composite score of 70% or higher mastery level.

Changes for future Assessments: None

ECHT 110

DC and AC Circuits

This learning activity introduces and reinforces techniques that the student will use to measure: AC/DC Voltages and Currents, and Resistance, using both a Bench and Portable DMM

Assessment: The student will be assessed twice during the course of the semester. Each practicum will involve one DC and another AC circuit, pre -experienced through either lab activities or demonstration. Students will be evaluated on: electrical quantity, quantity reporting, and measuring techniques.

Te rating levels: 30% electrical quantity, 30% quantity reporting, and 40% measuring techniques. This course assessment further reinforces a core Program SLO's.

Course/Program Assessment Results: The majority of the participants reached a composite score of 70% or higher mastery level.

Changes for future Assessments: None

Students will use a Electronic Simulation Software Package(similar to Multi-Sim or Spice) to supplement both the understanding and analysis of Direct and Alternating Current Circuits.

Assessment: The student will be assessed twice during the course of the semester. Each practicum will involve one DC and another AC circuit, pre-experienced through either lab activities or demonstration. Students will be evaluated on: simulation software navigation, simulation and reporting, and measuring techniques.

The rating levels: 30% simulation software navigation, 30% simulation and reporting, and 40% measuring techniques. Since the activities described are the students first exposure to circuit simulation software used on actual circuits, I feel comfortable with the results.

Course/Program Assessment Results: The majority of the participants reached a composite score of 70% or higher mastery level.

Course/Program Assessment Results: The majority of the participants reached either complete, or at least 70% mastery level

ECHT 22

Basic Electronic Fabrication

The learning activity is to design a functional PWB(Printed Wire Board)that is able to support both electrical and mechanical requirements for all components needed to assemble a PWB for a Low Voltage Power Supply

Assessment: Students designed, fabricated and soldered a fully functional, 2" x 4" circuit board to be integrated into their semester project.

Course/Program Assessment Results: The majority of the participants reached either complete, or at least 90% mastery level. The rating levels: 30% circuit board design, 30% circuit board fabrication, and 40% soldering and testing. Since the activities described are the student's first exposure to circuit board layout and fabrication, I feel comfortable that through post testing assessments these rates will increase..

Changes for future Assessments: None

c) Based on the Accrediting Commission for Community and Junior Colleges' (ACCJC) Rubric for Student Learning Outcomes, determine and discuss the program's level of SLO/assessment implementation: Awareness; Development; Proficiency; or Sustainable Continuous Quality Improvement?

The matrix ,page 19, shows how a course SLO is interwoven into a program SLO. The analogy I would like to use, spelling is interwoven in most, if not all language courses. What I have done, highlighted in "red" a sequence for both the course and program SLO, **"introduces and reinforces techniques that the student will use to measure: AC/DC Voltages and Currents, and Resistance, using both a Bench and Portable DMM"**. As you can see, there're inherited inferences on what will be assessed for mastery. The student then will perform a number of tasks to assess their competency, through a practicum. By evaluating performance, assigned levels of mastery can be determined. This process has an "intrinsic flaw". Because all tests developed are not totally valid and reliable. What we see at any given moment of time, a "snap-shot" of student performance. We as practicing faculty, know, even the best

instruction cannot achieve 100% mastery for all student, all the time! We can use boutique teaching methods to try to improve outcomes. But we know from prior educational experiences, some experimental instructional methods implemented into the classroom yielded learning obstacles, not advantages.

Learning Outcomes	Assessment Methods	Inferences from Assessments	Actions/Program Improvements
<p>This learning activity introduces and reinforces techniques that the student will use to measure: AC/DC Voltages and Currents, and Resistance, using both a Bench and Portable DMM</p> <p>Students will use a Electronic Simulation Software Package(similar to Multi-Sim or Spice) to supplement both the understanding and analysis of Direct and Alternating Current Circuits.</p> <p>The learning activity is to design a functional PWB(Printed Wire Board)that is able to support both electrical and mechanical requirements for all components needed to assemble a PWB for a Low Voltage Power Supply</p> <p>Given a schematic diagram, students will be able to assemble, test and measure the circuit for its operational parameters.</p> <p>Students will assemble and maintain a course notebook. The course notebook will be divided into five sections. Students will be responsible to accurately maintain the five sections of the course notebook according to a set of instructions. The course notebook is used to determine and record the successfully earned points that the student has received. These points are then used to determine if the student has earned either a passing or a failing grade in the course</p>	<p>Practicum's, Term Project, Portfolio Evaluation, and written Examinations</p>	<p>Assess students mastery levels in data acquisition the proper use of a DMM in making Current, Voltage, and Resistance measurements</p> <p>Assess students mastery levels in data acquisition from the designed use Circuit Simulation Applications</p> <p>Assess students mastery levels in “spatial reasoning”, materials and components used, while using industry level assembly techniques to complete a set task</p> <p>Assess students mastery levels in “spatial reasoning”, materials and components used, while using industry level assembly techniques to complete a set task</p> <p>Assess students mastery levels in following industry driven protocols. Students will be assessed on their ability to follow directions, take notes, and be able to communicate technical information to both technical and not-technical staff.</p>	<p>None. This Student Outcome is contextually reinforced throughout the entire Program</p> <p>None. This Student Outcome is contextually reinforced throughout the entire Course (ECHT 11 and 110)</p> <p>None. This Student Outcome is contextually reinforced throughout the entire Course (ECHT 22)</p> <p>None. This Student Outcome is contextually reinforced throughout the entire Program</p> <p>None. This Student Outcome is contextually reinforced throughout the entire Course (ECHT 140ab, 142ab, 144ab, 146ab, 148ab)</p>

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d) List related recommendations (when applicable)

None

5. Facilities, Equipment, and Technology

a) Describe and assess the adequacy and currency of the facilities, equipment, and technology used by the program/department

The Electronics and Computer Hardware Technology Department currently occupies “five” Lecture /Lab classrooms. Three of the five are specialty areas: Computer repair, Communications, and Fabrication. The two remaining areas are multiuse. Most of the classroom furniture is original, late 1950-60’s. The lighting has been upgraded, but many of the classrooms still have substandard lighting. All of the classrooms have Internet Access via an Ethernet cable. As to wireless, it is nonexistent.

We have a central Tool Room/Support that is designed to serve all five classrooms simultaneously, if needed. Within this area, we maintain an inventory of equipment and consumable parts with the estimated replacement value of at least \$500,000

b) Explain the immediate (1-2 years) needs related to facilities, equipment, and technology

As outlined in our Plan Builder, we are in need in replacing some of the very basic “core” equipment that is either obsolete and or non functional. In the Computer Technology, we will need a larger supply to purchase new relevant technology to teach these high tech courses.

c) Explain the long-range (2-4 years) needs in these areas

We are scheduled to move to the second floor of the MCS Building within the next 2-3 years. Our classroom assignment will be reduced from “five” to “three” classrooms. We will still have the Computer Repair and Communications Labs, but the Fabrication Lab will be a multiuse area. Also, Classrooms and the Tool Room will physically smaller in size.

A discussion within our department concluded that we can make do with the three assigned areas as long as the college agrees to :

- 1) All three of the classroom, Lab\Lecture will be a minimum of 1300 square feet
- 2) Ample storage in all of the areas to support instructional activities
- 3) The General Lab that will house the Fabrication class will have besides its **own** **closed** machine tool area, but also include a 144 square foot tool/supply storage are.

- 4) New furniture to support the instructional areas. (Tables, Work Benches, Stools, and Storage Cabinets)

d) List related recommendations (when applicable)

We will need a larger supply to purchase new relevant technology to teach new and existing high tech courses.

6. Staffing

a) Describe current staffing (include all employees)

Faculty

The Electronics and Computer Hardware Technology department currently has 3 full-time faculty dedicated to the success of our students. All three have been active in other areas of the campus, to various degrees. For example, Professor have been an active leader of the Academic Senate, Division Council, and Advisor to the ECC Radio Club and Radio Station for several years. Professor John Ruggirello has been a leader campus wide in Academic Technology. He has also served as a division SLO coordinator for the Industry and Technology Division. Professor Cocca has shown leadership in Women in Technology, Green Technology, and Curriculum Development. Since the last Program Review, Professor Cocca has served in various administrative position s such a Interim Associate Dean and Faculty Coordinator, Industry and Technology, Mr. Robert Diaz, Adjunct ECHT Faculty

Support Staff

Mr. Pete Peterson, Equipment Technician and Tool Room Attendant
Mr. Seth Barnard, 50% Electronics Tool room Tool Room Attendant

b) Explain and justify the program/department's immediate and long-range staffing needs

We are the only remaining electronics program west of the 605 Freeway. In essence we are the only regional community college general electronics program in existence. Companies large and small look to us to provide training not only in electronics technology but also, to support allied technologies in manufacturing, robotics, environmental controls/systems, and emerging technologies like "Green Technology". We have surveyed our students and our conclusion is that even though many students may not complete either a certificate or AS Degree, they find the training they receive from the ECHT of value that satisfies their needs

Within the next 3-5 years at least 50% of the ECHT Faculty and Staff are looking to retire. we need to attract new faculty and support staff that posses the knowledge to both sustain an ensure the instructional quality of the program.

c) List related recommendations (when applicable)

Attract new faculty and support staff that possess the knowledge to both sustain and ensure the instructional quality of the program.

7. Direction and Vision

a) Are there any changes within the academic field/industry that will impact the program in the next four years?

Many opportunities are available for professionals with high-tech skills in the electronics, computer, and cabling and wiring fields. Employers include telephone, satellite, and radio communications organizations; manufacturers and aerospace firms; small- and medium-sized business of all types, including electrical and construction contractors and audio/video specialists; and schools and government agencies.

Electronics technicians and technologists work with engineers to develop, manufacture, calibrate, test, and repair electronic devices and systems. Technicians use complex measuring and diagnostic devices to analyze, test, and verify the operation of circuits and systems. Technicians working in the communications field may need licenses from the Federal Communications Commission (FCC). Mt. SAC is an authorized test center for FCC licensing examinations administered by the National Association of Radio and Telecommunications Engineers. The U.S. Department of Labor projects greater-than-average growth in demand for Electrical and Electronic Technicians. In 2006, the average hourly rate was \$25.00 for electronics technicians increasing to over \$35.00 with experience.

Computer maintenance technicians maintain and repair computers and peripherals at both the hardware and software levels. Network specialists design and develop systems for linking computers with each other and with peripheral devices. Highly skilled network specialists troubleshoot systems and supervise installations. Demand for both specialties continues to grow because increasing reliance on fully networked computer systems has created a shortage of both qualified entry-level technicians and fully qualified workers. In 2006, the average hourly rate was \$19.00 for computer technicians increasing to over \$25.00 with experience.

Cabling & Wiring technicians work with voice, video, and data cables and associated systems. Home automation and security specialists install and maintain home networking and home security systems. The security field continues to grow as a result of national and world conditions. Additionally, high-definition television, scheduled for national implementation in 2009, is the driving force for new positions in the field of home theater installation. Qualified technicians are needed to meet projected increased demand for both security and home-theater installations. In 2006, the average hourly rate was \$17.00 for fire and safety equipment installers and \$25.00 for telecommunication equipment installers.

The need for electricians in California will continue to grow for the foreseeable future. There are approximately 65,000 electricians today with a forecasted growth of approximately 10,000 new jobs by 2014. In addition, there will be several thousand current workers leaving

their jobs due to retirements or change in career. In 2006, starting hourly rates were approximately \$17.00 for electrician trainees increasing to over \$30.00 for licensed electricians.

b) Explain the direction and vision of the program and how you plan to achieve it

The Electronics and Computer Hardware Technology program will provide fundamental and advanced skills training in analog and digital circuits, electronic communications, microprocessors and computers, and industrial electronics. Students will prepare for national and industrial certifications in a variety of areas, including CompTIA A+ and NetPlus and radio-telephone communications.

The Program content will be relevant for either employment or for transfer to B.S. degree programs offered in the CSU system.

We plan to achieve this goal by reviewing our curriculum for currency, and depending on the financial support of the college

c) How does the program fulfill the college’s mission and align with the strategic initiatives? Achievement of Associate Degrees in Arts and Sciences

- Transfer to baccalaureate institutions
- Cultural enrichment and lifelong learning
- Acquisition of the necessary career education and skills to successfully participate in the workplace and global economy
- Development of the economy and jobs in the region and state

8. Prioritized Recommendations

a) Provide a single, prioritized list of recommendations and needs for your program/department, including *cost estimates* for salaries, expenditures and/or purchasing needs.

Goal # 1 (2-5 years)	Long term	Status: in progress	Increase enrollment by offering more classes at optimal times
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Evaluation of Goal

The institution needs to commitment to an infusion of approximately \$195,000 to bring this department's instructional equipment to a basic industry standards.

3/6/11 SR

Resources from Other Sources

Resources from VTEA

Required for How Long: 1 time

Requested: \$ 195000

Received: \$ 0

Reason for the difference between the amounts:

10/12/10 I don't know

3/6/11 SR -revised to 78 computers @ \$2500 ea.=\$195,000 approx.

This request may be impacted by MCS remodel plan.

A request for bond money has not yet been submitted.

4/14/11 CN

Goal #1 Long term (2-5 years) Status: in progress

Increase enrollment by offering more classes at optimal times

Evaluation of Goal

Enrollment has stabilized and by offering classes at optimum times for students, enrollment will increase.

Objective #1.1 Status: in progress

Review student demand and the times classes are offered. Revise schedule as needed.

Existing Resources

Current ECHT faculty and Dean

Objective #1.1 Status: in progress

6/20/11 This has been an on-going process with modifications to ECHT scheduling. sr

Review student demand and the times classes are offered. Revise schedule as needed.

Impact of Objective on Other Programs, Units, and/or Areas

Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology

Program may need to project scheduling 4 semesters for faculty load and student planning

Existing Resources

Faculty approve schedule and planning 1 semester in advance

Goal #2 Long term (2-5 years) Status: on hold

6/20/11 No major improvements until Re modernization project is completed in MCS Bldg. sr

Upgrade labs in TA 105,106,153, and154.

Evaluation of Goal

Evaluation of Goal

Upgrade labs painting, lighting, and workstations.

Objective #2.1

Status: on hold

6/20/11 On hold until Re modernization project is complete in MCS Bldg. sr

Purchase Electronic Test Equipment, Workstations, Instructional Technology Equipment, and Computers to upgrades Electronics labs in TA105,106,153, and154 .

Resources from Other Sources

Resources from VTEA

Required for How Long: 5 years

Requested: \$ 50000

Received: \$ 0

Reason for the difference between the amounts:

Proposed amount currently not budgeted

As of 3/09/09 this still hasn't been budgeted

Resources Needed: Additional Technology

Technology Classification: Computer Hardware

Requested Amount: \$ 50000

Description:

Electronic Test Equipment, Workstations, Instructional Technology Equipment, and Computers to upgrades

Reason:

Provide technological relevant Electronic and Computer hardware training to the new sophisticated student population we're starting to see

Location: Electronics labs in TA105,106,153, and154 .

New or Replacement: Replace Existing

Services Required: Electricity, College Network Access, Software Support

Resources Needed: Additional Space or Changes to Facilities

Requested Amount: \$ 60000

Description:

1.Up grade electrical service in the classrooms, 2 Install drop ceiling , installation of instructional training fixtures and upgrade lighting

Reason:

Modernize existing lecture/lab rooms to accommodate ISDN and other Networking activities

Location: Electronics labs in TA105,106,153, and154

Services Required: Electricity

Objective #2.2

Status: complete

6/20/11 Some supplies have been purchased. Computer replacement will be reserved for the MCS Re modernization project. sr

Requested Amount: \$ 100,000

Description: Integrated Services Digital Network (ISDN)

Purchase equipment: Racks, Switches, Routers, and Server Software to install a full training network (Fiber, Cable and Wireless), for the Computer Hardware Lab, TA153

Supporting Rationale

This lab needs this state-of-the -art equipment that will run the newest software and Network Operating Systems used in industry.

Impact of Objective on Other Programs, Units, and/or Areas**Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology**

Integrate applications in existing Digital and Network as well as new courses to be developed

Resources from Other Sources**Resources from Fund 11**

Required for How Long: 3 years

Requested: \$ 30000

Received: \$ 0

Reason for the difference between the amounts:

Not currently in the budget

Resources from VTEA

Required for How Long: 5 years

Requested: \$ 10000

Received: \$ 0

Reason for the difference between the amounts:

Not currently in the budget

Resources Needed: Additional Budget

Object Code: 6100 SITES AND SITE IMPROVEMENTS

Required for How Long: 1 time

Requested Amount: \$ 50000

Description:

Purchase equipment: Racks, Switches, Routers, and Server Software to install a full training network (Fiber, Cable and Wireless), for the Computer Hardware Lab, TA153

Supporting Rationale

This lab needs this state-of-the-art equipment that will run the newest software and Network Operating Systems used in industry.

Resources Needed: Additional Technology

Technology Classification: Computer Hardware

Requested Amount: \$ 20000

Description:

Purchase equipment: Racks, Switches, Routers, and Server Software

Reason:

Build cutting edge Digital Telecommunications Lab with state-of-the-art equipment that will run the newest software and Network Operating Systems used in industry.

Location: TA153

New or Replacement: New Installation

Services Required: Electricity, Internet Access, College Network Access

Resources Needed: Additional Space or Changes to Facilities

Requested Amount: \$ 20000

Description:

Upgrade Lighting in Lab Area

Reason:

Build cutting edge Digital Telecommunications Lab that will attract students and support the technical needs of our industrial partners

Location: TA153

Services Required: Electricity

Objective #2.3

Status: in progress

6/20/11 Software has been ordered_ Multisim for S. Cocca's class. sr

Test equipment on hold. sr

Technology Classification: Computer Hardware

Requested Amount: \$ 75,000

Description: Purchase new state of the art Test Equipment for three labs and replace them every three years.

Reason: For the credibility and success of our Program and students, we must use similar Test Equipment that is used currently in industry.

Location: TA105,106,153, and154

New or Replacement: Replace Existing

Services Required: Electricity, Internet Access, Software Support, Test Equipment, and other Hardware Support

Goal #3 Short term (1 year) Status: in progress

Renovate TA105,106,153, 154, and155 to increase the number of computer workstations in each room.

Evaluation of Goal

Presently there are only 36 workstations in TA153, and 20 workstations in TA105 and 5 workstations in TA155; in order to maximize the use of these labs. These workstations should have the latest software and upgrades installed. Curriculum will be upgrades to be more simulation driven

Impact of Objective on Other Programs, Units, and/or Areas

Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology

For the credibility and success of our Program and students, we must use similar Test Equipment that is used currently in industry

Resources from Other Sources

Resources from Fund 15

Required for How Long: 1 time

Requested: \$ 75000

Received: \$ 0

Reason for the difference between the amounts:

Not currently budgeted

Resources Needed: Additional Budget

Object Code: 6400 EQUIPMENT

Required for How Long: Ongoing

Requested Amount: \$ 5000

Description:

Supply budget and replacement

Supporting Rationale

Test equipment have approximately a 5 year service life in a educational environment. This equipment will need to be replaced in a rotation.

Resources Needed: Additional Technology

Technology Classification: Technology Related to Facilities (e.g., Smart Classrooms, etc.)

Requested Amount: \$ 30000

Description:

Install smart technology in TA 105,106,153,154,and 155

Reason:

Address the learning need of our students

Location: TA 105,106,153,154,and 155

New or Replacement: New Installation

Services Required: Electricity, Internet Access, College Network Access, Software Support, Hardware Support

Goal #3 Long term (2-5 years) Status: in progress

Renovate TA105,106,153, 154, and155 to increase the number of computer workstations in each room.

Purchase furniture and workbenches to accommodate lab activities in the general electronics labs TA105, 106 and153 , 154,155,.

Evaluation of Goal

Presently there are only 36 workstations in TA153, and 20 workstations in TA105 and 5 workstations in TA155; in order to maximize the use of these labs. These workstations should have the latest software and upgrades installed. Curriculum will be upgrades to be more simulation driven

Objective #3.1 Status: on hold

6/20/11 On hold until Re modernization project is complete in MCS Bldg. sr

Renovate TA105,106,153, 154, and155 to increase the number of computer workstations in each room.

Impact of Objective on Other Programs, Units, and/or Areas

Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology

An effective Electronic Technology training program will see computerized workstations integrated in the in both lectures and lab activities.

Resources from Other Sources

Resources from VTEA

Required for How Long: Ongoing

Requested: \$ 20000

Received: \$ 0

Reason for the difference between the amounts:

Proposed Activity is not currently budgeted

Resources Needed: Additional Budget

Object Code: 4000 SUPPLIES AND MATERIALS

Required for How Long: Ongoing

Requested Amount: \$ 13000

Description:

Software licenses and upgrades

Supporting Rationale

We purchase software that is constantly used in both lecture and lab activities. Software licenses and upgrades will be paid annually to support such software

Resources Needed: Additional Technology

Technology Classification: Computer Hardware

Requested Amount: \$ 0

Description:

ECHT will not need support

Reason:

Integrate applications in existing as well as new courses

Location: TA 105,105,153,154,and 155

New or Replacement: Replace Existing

Services Required: Internet Access, College Network Access, Software Support

Resources Needed: Additional Space or Changes to Facilities

Requested Amount: \$ 0

Description:

No need for Facility changes

Reason:

Integrate applications in existing as well as new courses

Location: TA 105,105,153,154,and 155

Services Required: None

Objective #3.2

Status: abandon

6/20/11 On hold until Re modernization project is complete in MCS Bldg. sr

Presently there are only 36 workstations in TA153, and 20 workstations in TA105 and 5 workstations in TA155; in order to maximize the use of these labs. These workstations should have the latest software and upgrades installed. Curriculum will be upgrades to be more simulation driven

Impact of Objective on Other Programs, Units, and/or Areas

Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology

Classroom computers must have the latest software and upgrades installed. Curriculum will be upgrades will move to more simulation driven

Resources from Other Sources

Resources from Fund 15

Required for How Long: Ongoing

Requested: \$ 6000

Received: \$ 0

Reason for the difference between the amounts:

Not Budgeted

3/09/09 Still not Budgeted

Resources Needed: Additional Technology

Technology Classification: Computer Hardware

Requested Amount: \$ 45000

Description:

Upgrade 36 workstations in TA153, and 20 workstations in TA105 and 5 workstations in TA155; in

Reason:

Meet the needs of changing technologies

Location: TA153, and 20 workstations in TA105 and 5 workstation

New or Replacement: Replace Existing

Services Required: Internet Access, College Network Access, Software Support, Hardware Support

Resources Needed: Additional Space or Changes to Facilities

Requested Amount: \$ 0

Description:

None

Reason:

N/A

Location: TA153, and 20 workstations in TA105 and 5 workstation

Services Required: None

Objective #3.3

Status: abandon

6/20/11 On hold until Re modernization project is complete in MCS Bldg. sr

Purchase furniture and workbenches to accommodate lab activities in the general electronics labs TA105, 106 and 153, 154, 155.

Object Code: 6400 EQUIPMENT

Required for How Long: 1 time

Requested Amount: \$75,000

Description: Workbenches, Storage, and Stools.

Supporting Rationale To increase the number of work stations.

Resources Needed: Additional Space or Changes to Facilities

Required for How Long: 1 time

Requested Amount: \$ 60,000

Description: Upgrade and relocate electrical drops and add electrical outlets.

Reason: Increased power demand from equipment and workstations.

Location: TA105, 106, 153, 154 and 155

Services Required: Electricity

Impact of Objective on Other Programs, Units, and/or Areas

Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology

Increase Workbenches, Storage areas, and Stools, Increased power demand from equipment and workstations.

Location: TA105, 106, 153, 154 and 155

Resources from Other Sources

Resources from Fund 15

Required for How Long: 1 time

Requested: \$ 75000

Received: \$ 0

Reason for the difference between the amounts:

Not currently Budgeted
3/09/09 Currently not budgeted

Resources Needed: Additional Budget

Object Code: 6400 EQUIPMENT

Required for How Long: 1 time

Requested Amount: \$ 60000

Description:

Increase Workbenches, Storage areas, and Stools, Increased power demand from equipment and workstations.

Location: TA105,106,153, 154 and155

3/09/09 Because of availability, materials and energy cost, the cost has increased over fiscal year 2008-09

Supporting Rationale

To increase the number of work stations

Goal #4 Long term (2-5 years) Status: complete

6/20/11 Promotion of department has been linked with the STEM project to support ECHT high tech activities. sr

Market the ECHT programs to the local industry and to surrounding high schools.

Evaluation of Goal

Marketing to the industry and to surrounding high schools, will help to improve enrollment.

Objective #4.1 Status: complete

6/20/11 Promotion of department has been linked with the STEM project to support ECHT high tech activities. sr

Publicize the ECHT programs to the community and high schools.

Develop flyers, promotional CDs and DVDs.

Resources Needed: Additional Budget

Object Code: 4000 SUPPLIES AND MATERIALS

Required for How Long: Ongoing

Requested Amount: \$ 1000

Description: Flyers, promotional CDs and DVDs

Supporting Rationale: To market the ECHT program to local industry and high schools

Impact of Objective on Other Programs, Units, and/or Areas

Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology

To market the ECHT program to local industry and high schools

Resources from Other Sources

Resources from VTEA

Required for How Long: Ongoing

Requested: \$ 1000

Received: \$ 0

Reason for the difference between the amounts:

Not currently in the budget

Resources Needed: Additional Budget

Object Code: 4000 SUPPLIES AND MATERIALS

Required for How Long: Ongoing

Requested Amount: \$ 500

Description:

Development of recruitment material

Supporting Rationale

To market the ECHT program to local industry and high schools

Objective #4.2

Status: abandon

6/20/11/ Abandon due to budget restraints.. sr

The Community Advancement Division should hire staff to help market and promote academic programs such as, the ECHT program.

Resources Needed: Additional Personnel

Position Classification: Classified Staff

Required for How Long: Ongoing

Position Description: Casual worker or adjunct faculty to market and promote the ECHT programs to the local industry and high schools.

Estimated Cost: \$ 15,000

Supporting Rationale: To advise the community of the programs and services we offer.

Impact of Objective on Other Programs, Units, and/or Areas

Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology

Advancement Division should hire staff to help market and promote academic programs such as, the ECHT program

Resources from Other Sources

Resources from VTEA

Required for How Long: Ongoing

Requested: \$ 15000

Received: \$ 0

Reason for the difference between the amounts:

Not budgeted

Resources Needed: Additional Budget

Object Code: 5100 PERSONAL AND CONSULTANT SERVICES

Required for How Long: Ongoing

Requested Amount: \$ 15000

Description:

Advancement Division should hire staff to help market and promote academic programs such as, the ECHT program

Supporting Rationale

To advise the community of the programs and services we offer.

Goal #5 Long term (2-5 years) Status: in progress

6/20/11 On-going discussion - ECHT 20 Series is being developed by D. Marston to provide continuity of scheduling. sr

Work to offer and schedule advanced courses that meet the needs of our student populations.

3/09/09 Develop a master schedule to enable ECHT students to complete their core program in a timely fashion (2 ears or less)

Evaluation of Goal

Pre select those advanced courses that have the greatest chance of “fill”. The goal is to offer and fill a course offering that hasn’t been offered in at least three

3/09/09 Offer core courses on an alternating day/evening staggered schedule.
Students will be pre-program their courses they want to take .

Objective #5.1

Status: in progress

6/20/11 Faculty have met to review scheduling at least once a year. sr

Work to offer and schedule advanced courses that meet the needs of our student populations.

Impact of Objective on Other Programs, Units, and/or Areas

Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology

Pre select those advanced courses that have the greatest chance of “fill”. The goal is to offer and fill a course offering that hasn’t been offered in at least three

Goal #6 Long term (2-5 years)

Status: complete

6/20/11 Multi-sim has been ordered. sr

Maintain and renew software licenses (currently paid by ITS).
Purchase new software as needed.

Annual renewal of the following:

MultiSim

VEX

MSDN Alliance

3/09/09 Microsoft Applications are constantly changing. Because of this issue, the ECHT Dept would like to participate with the Microsoft Software Alliance to support all the courses in the core.

Evaluation of Goal

The Department currently has software that requires annual license renewal

The Microsoft Software Alliance to support all the courses in the core.

Objective #6.1

Status: abandon

6/20/11 Robotics has been moved to the MTT program. sr

Resources Needed: Additional Budget

Object Code: 4000 SUPPLIES AND MATERIALS

Required for How Long: Ongoing

Requested Amount: \$ 11,300

Description: Annual renewal of software licensing fees.

Supporting Rationale

Renewal of MultiSim - currently \$10,800 annually

Renewal of MSDN Academic Alliance license fees. - currently \$500 annually

Impact of Objective on Other Programs, Units, and/or Areas

Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology

Replenish exhausted supplies and robotic components that support both ECHT and MTT

Resources Needed: Additional Budget

Object Code: 4000 SUPPLIES AND MATERIALS

Required for How Long: Ongoing

Requested Amount: \$ 11300

Description:

Professional Development focused on robotics and automation

Supporting Rationale

Required to develop curriculum that meet industry standards

Object Code: 4000 SUPPLIES AND MATERIALS

Required for How Long: Ongoing

Requested Amount: \$ 1000

Description:

Renewal of MultiSim - currently \$10,800 annually

Renewal of MSDN Academic Alliance license fees. - currently \$500 annually

Supporting Rationale

Required to develop curriculum that meet industry standards

Resources Needed: Additional Technology

Technology Classification: Computer Hardware

Requested Amount: \$ 0

Description:

These resources are considered consumables

Reason:

Have a dedicated system with all specific software installed

Location: TA 105 and 155

New or Replacement: New Installation

Services Required: Internet Access, College Network Access

Goal #7 Short term (1 year) Status: complete
6/20/11 Faculty are provided opportunities to attend workshops and conferences. sr

Train faculty to keep them up to date in current technologies.

Evaluation of Goal

The ECHT program offers instruction in state of the art and cutting edge technologies. Faculty must have adequate training to teach the courses.

Objective #7.1 Status: abandon
6/20/11 Faculty have resources through the District, Division, and CTEA funds to request attendance to training. sr

Resources Needed: Additional Budget

Object Code: 5200 TRAVEL AND CONFERENCE EXPENSES

Required for How Long: Ongoing

Requested Amount: \$ 5000

Description: Training for ECHT faculty to stay up to date in current technologies.
Supporting Rationale To keep ECHT faculty current.

Impact of Objective on Other Programs, Units, and/or Areas

Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology

Faculty need to stay current in the discipline they teach. To do so, faculty will need to attend seminars, workshop, and even participate in paid internships

Resources Needed: Additional Budget

Object Code: 5200 TRAVEL AND CONFERENCE EXPENSES

Required for How Long: Ongoing

Requested Amount: \$ 5000

Description:

Faculty need to stay current in the discipline they teach. To do so, faculty will need to attend seminars, workshop, and even participate in paid internships

Supporting Rationale

Faculty need to stay current in the discipline they teach. To do so, faculty will need to attend seminars, workshop, and even participate in paid internships

Resources Needed: Additional Space or Changes to Facilities

Requested Amount: \$ 0

Description:

N/A

Reason:

N/A

Location: N/A

Services Required: None

Goal #8 Long term (2-5 years)

Status: abandon

6/20/11 Abandon - Budget restraints.sr

Offer faculty release time to coordinate the ECHT Program with the local four-year schools.

Evaluation of Goal

By coordinating with the four year schools, we can articulate more courses with them for the benefit of the students.

Objective #8.1

Status: abandon

6/20/11 Abandon. sr

To coordinate the ECHT Program with the local high schools, industry, and four-year schools.

Resources Needed: Additional Budget

Object Code: 5100 PERSONAL AND CONSULTANT SERVICES

Required for How Long: Ongoing

Requested Amount: \$ 5000

Description:

To coordinate the ECHT Program with the local high schools, industry, and four-year schools.

Supporting Rationale

To coordinate the ECHT Program with the local high schools, industry, and four-year schools.

Goal #9 Short term (1 year)

Status: abandon

6/20/11 Abandon sr

Give release time to a faculty member to coordinate the ECHT program with local four-year schools

Evaluation of Goal

This program will establish a regional consortium to meet the need of our community. This "super Advisory Committee", will be a version of the 2+2 model

Objective #9.1

Status: abandon

6/20/11 Budget restraints and District approval needed. sr

Position Classification: Faculty (contract)

Required for How Long: Ongoing

Position Description: Department Chairman to work with the local high schools, industry, and four-year schools

Estimated Cost: \$ 35,000

Supporting Rationale:

To coordinate the ECHT Program with the local high schools, industry, and four-year schools.

Impact of Objective on Other Programs, Units, and/or Areas

Impact on the Industry & Technology Program: Electronics & Computer Hardware Technology

Department Chairman to work with the local high schools, industry, and four-year schools

Resources from Other Sources

Resources from Fund 11

Required for How Long: Ongoing

Requested: \$ 10000

Received: \$ 0

Reason for the difference between the amounts:

Not in the budget

Resources Needed: Additional Budget

Object Code: 5100 PERSONAL AND CONSULTANT SERVICES

Required for How Long: Ongoing

Requested Amount: \$ 10000

Description:

Department Chairman to work with the local high schools, industry, and four-year schools

Supporting Rationale

To coordinate the ECHT Program with the local high schools, industry, and four-year schools.

Goal #10 Long term (2-5 years) Status: complete

6/20/11 Hired FT tool room attendant. Time will be shared with Architecture and ECHT. sr

Hire a full-time ECHT Tool room attendant to replace the two that resigned

Evaluation of Goal

Over the past year, it has become apparent, that one tool room/equipment technician isn't sufficient to support ECHT's day and evening instructional programs.

Objective #10.1 Status: complete

6/20/11 completed with a ft employee to be shared with Architecture. sr

The district must make a commitment to support through staffing, the needs of faculty. To do this, the new tool room attendant will be assigned to: check in/out equipment, take tool room inventories, order new equipment and supplies. and be a backup to the senior attendant/equipment technician

Existing Resources

The district has previously budgeted the ECHT department for two "10"mo tool room attendants and one tool room attendant/equipment technician

Resources Needed: Additional Personnel

Position Classification: Classified Staff

Required for How Long: Ongoing

Position Description:

The new tool room attendant will be assigned to: check in/out equipment, take tool room inventories, order new equipment and supplies. and be a backup to the senior attendant/equipment technician

Estimated Cost: \$ 33300

Supporting Rationale:

The new tool room attendant will be assigned to: check in/out equipment, take tool room inventories, order new equipment and supplies. and be a backup to the senior attendant/equipment technician. The senior technician has indicated that he will be

retiring within the next three years. Because of the complexity of this position, the department need adequate time to train a new tool room attendant/ equipment technician

APPENDIX

Annual Seat Count, RETENTION.....	45
Success Rate.....	46
Time of Classes, Participation by Gender.....	47
Student Educational Goals, Student Ethnicity.....	48
Student Academic Attainment, Age Group.....	49
Degree Distribution 2006-2009.....	50-52
Student Survey	53-60

	2006-07	2007-08	2008-09	2009-10
Sections	34	30	28	23
Seats	451	465	454	486
Unduplicated Students	297	320	292	328
Seats Unduplicated	1.5	1.5	1.5	1.5

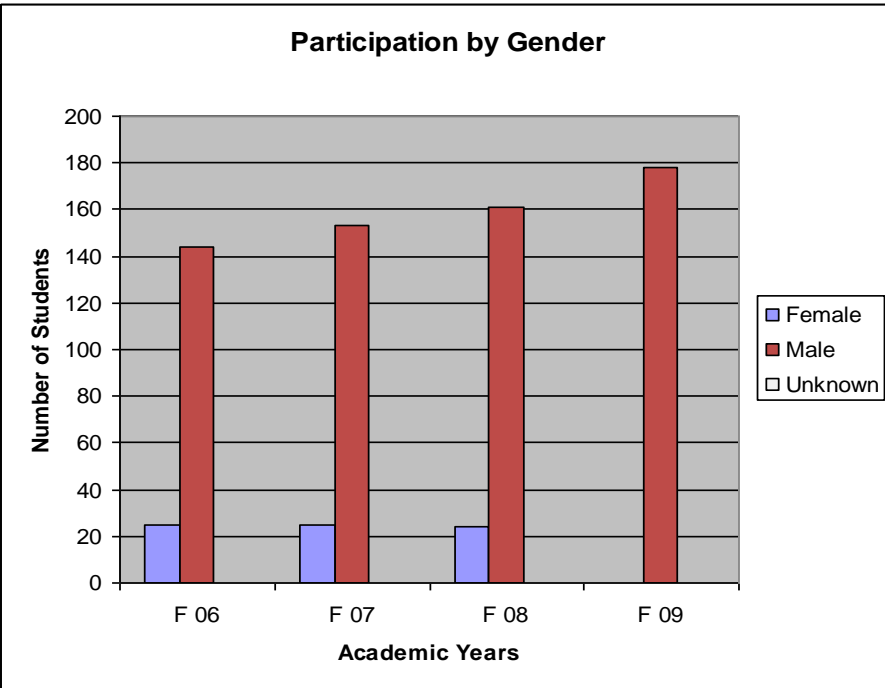
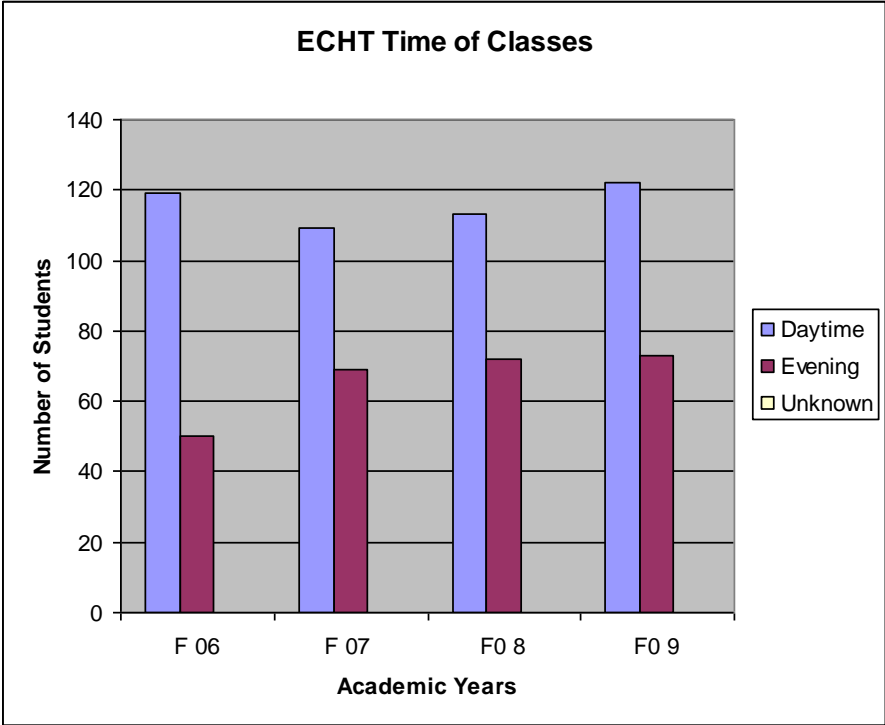
Seat Count
Course, Section, Seat Counts
Years: 2006-07 to 2009-10

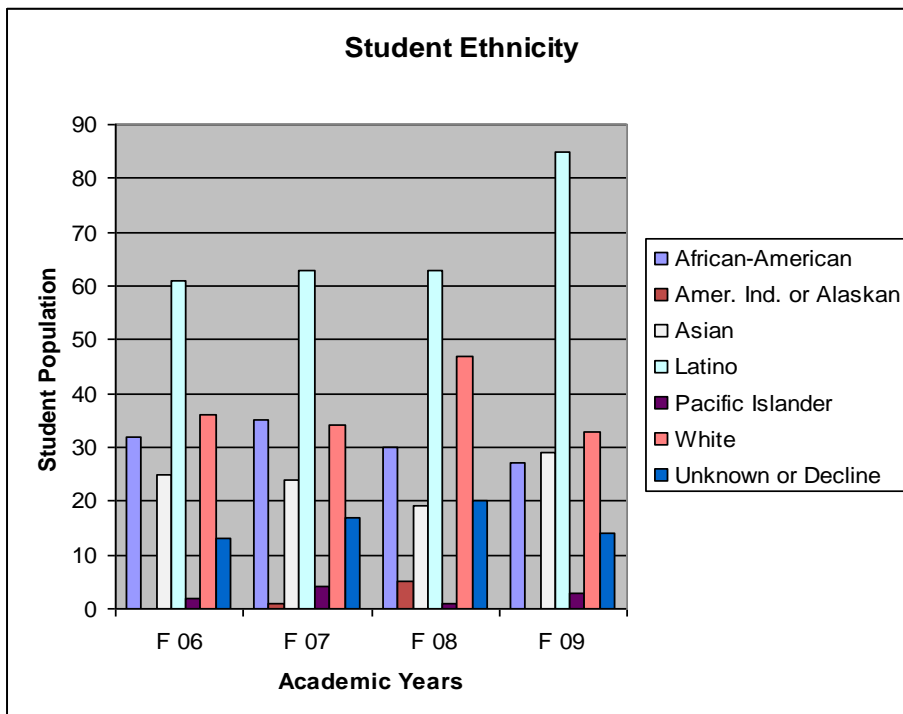
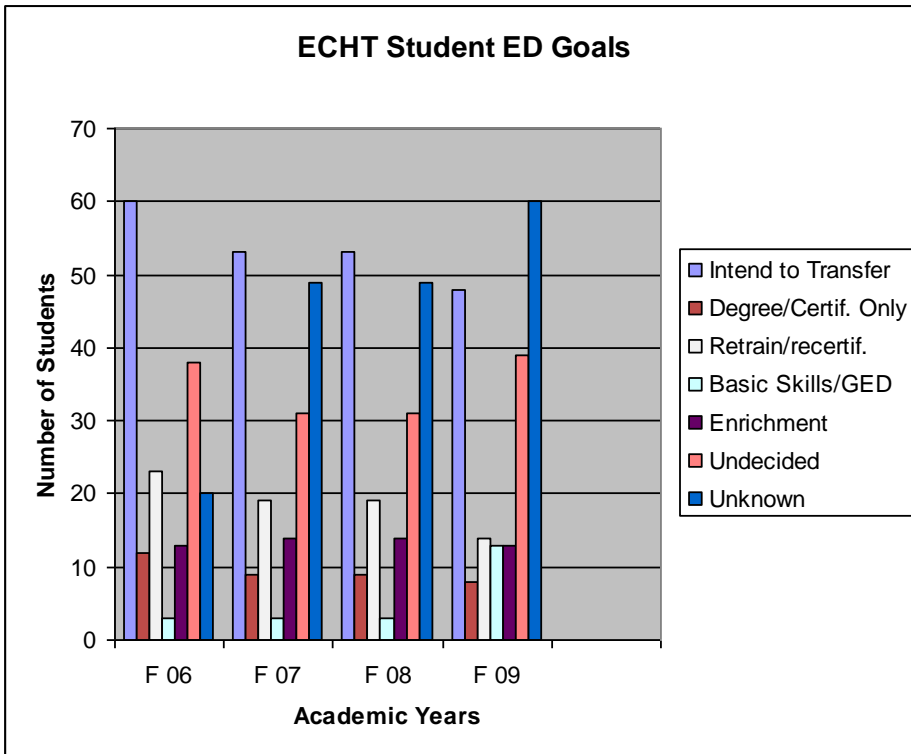
Retention Rates

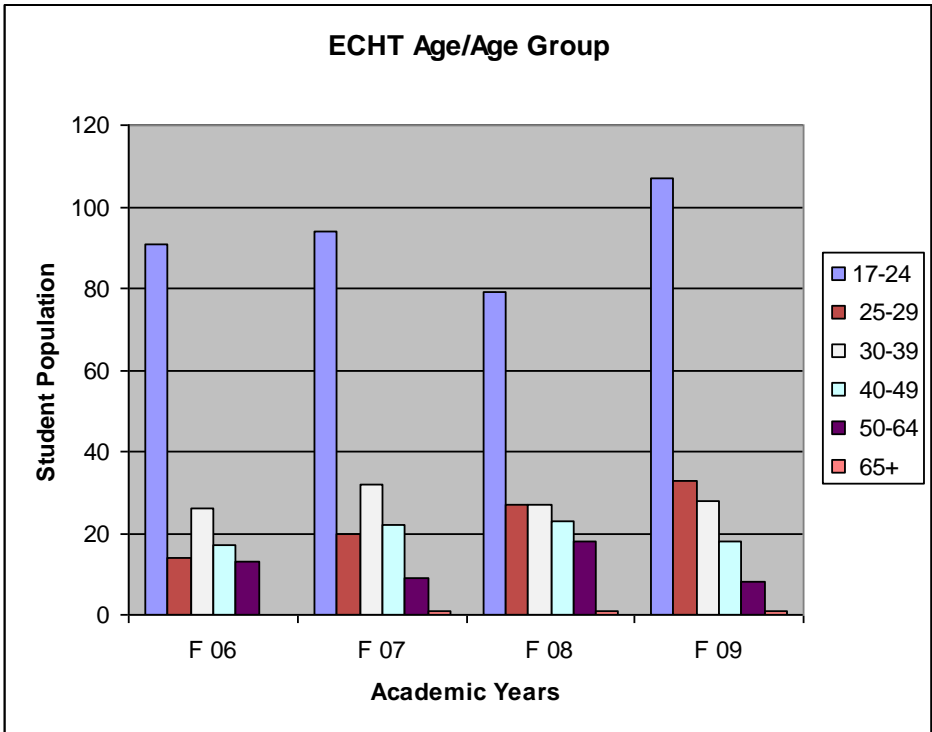
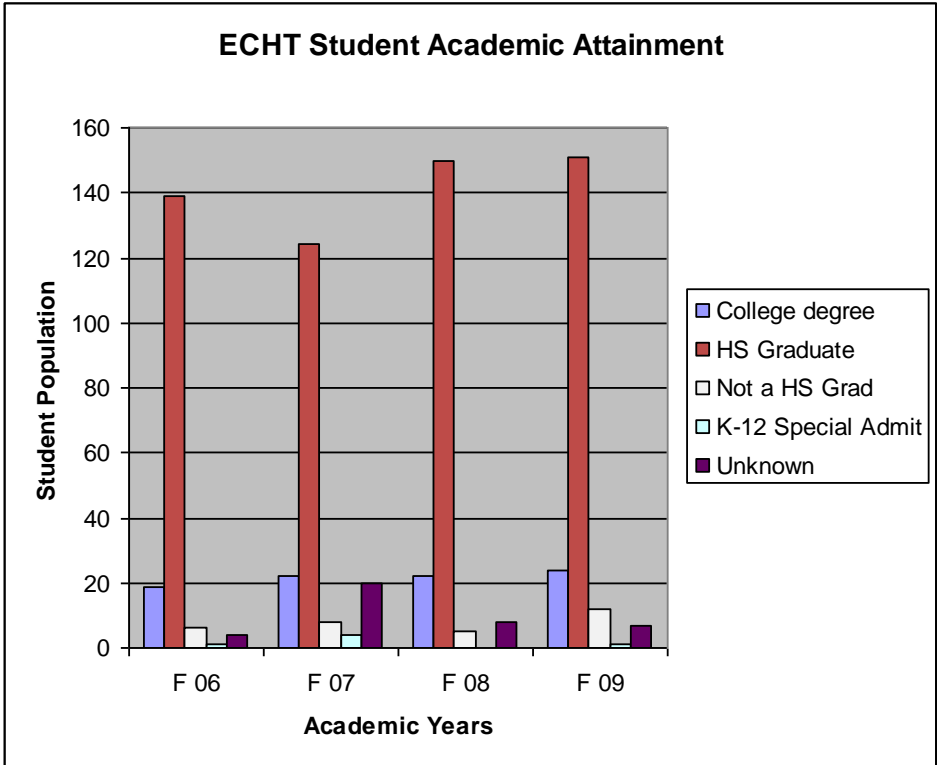
Course	F 06	F 07	F 08	F 09
ECHT 11	65.7%	67.1%	90.8%	76.4%
ECHT 110	94.1%	N/A	92.3%	89.5%
ECHT 112	N/A	N/A	N/A	N/A
ECHT 120	83.3%	86.7%	N/A	83.3%
ECHT 122	N/A	75.0%	N/A	N/A
ECHT 124	80.0%	N/A	80%	N/A
ECHT 130	84.2%	76.5%	65.7%	80.0%
ECHT 131	100%	100%	N/A	N/A
ECHT 140ab	88.2%	77.3%	80.6%	77.8%
ECHT 142ab	69.2%	50.0%	80.0%	90.9%
ECHT 144ab	76.9%	75.0%	71.4%	90.9%
ECHT 20	40.0%	N/A	N/A	N/A
ECHT 22	56.3%	65.2%	90.0%	96.8%
ECHT 62	N/A	N/A	88.9%	N/A
ECHT 192	N/A	N/A	N/A	89.5%
ECHT 95 abc	N/A	N/A	0	N/A
ECHT 99 abc	100%	100%	N/A	N/A
Course Totals	72.6%	72.0%	82.2%	83.3%
Div Total Average	82.7%	83.5.0%	87.0%	87.4%
College Total Average	77.6%	77.3%	80.9%	81.8%

Success Rate

Course	F 06	F 07	F 08	F 09
ECHT 11	48.3%	47.9%	51.3%	55.1%
ECHT 110	82.4%	N/A	76,9%%	78,9%
ECHT 112	N/A	N/A	N/A	N/A
ECHT 120	83.3%	86.7%	N/A	83.3%
ECHT 122	N/A	75.0%	N/A	N/A
ECHT 124	70.0%	N/A	40.0%	N/A
ECHT 130	73.7%	76.5%	51.4%	50.0%
ECHT 131	80%	100%	N/A	N/A
ECHT 140ab	82.4%	77.3%	80.6%	66.7%
ECHT 142ab	61.5%	50.0%	50.0%	63.6%
ECHT 144ab	76.9%	75.0%	61.9%	72.7%
ECHT 20	40.0%	N/A	N/A	N/A
ECHT 22	43.8%	65.2%	70.0%	71.0%
ECHT 62	N/A	N/A	33.3%	N/A
ECHT 192	N/A	N/A	N/A	89.5%
ECHT 95 ABC	N/A	N/A	0	N/A
ECHT 99 ABC	100%	100%	N/A	N/A
Course Totals	61.6%	72.0%	56.4%	65.3%
Div Total Average	71.8%	83.5.0%	74.1%	77.6%
College Total Average	62.8%	77.3%	63.8%	66.3%







Degree and Certificate Awards

Award Count for El Camino College in Year 2006-2007 Program: Industrial Electronics (093420)

Award Type	Program Type	Award Count
Certificate requiring 18 to < 30 semester units	Industrial Electronics (093420)	1
Certificate requiring 30 to < 60 semester units	Industrial Electronics (093420)	1
Grand Total		2

Award Count for El Camino College in Year 2006-2007 Program: Electronics and Electric Technology (093400)

Award Type	Program Type	Award Count
Certificate requiring 18 to < 30 semester units	Electronics and Electric Technology (093400)	6
Grand Total		6

Award Count for El Camino College in Year 2006-2007 Program: Computer Electronics (093410)

Award Type	Program Type	Award Count
Associate of Science (A.S.) degree	Computer Electronics (093410)	7
Certificate requiring 18 to < 30 semester units	Computer Electronics (093410)	2
Certificate requiring 30 to < 60 semester units	Computer Electronics (093410)	1
Grand Total		10

Award Count for El Camino College in Year 2007-2008
Program: Electronics and Electric Technology (093400)

Award Type	Program Type	Award Count
Certificate requiring 18 to < 30 semester units	Electronics and Electric Technology (093400)	3
Certificate requiring 30 to < 60 semester units	Electronics and Electric Technology (093400)	2
Grand Total		5

Award Count for El Camino College in Year 2007-2008
Program: Computer Electronics (093410)

Award Type	Program Type	Award Count
Associate of Science (A.S.) degree	Computer Electronics (093410)	7
Certificate requiring 18 to < 30 semester units	Computer Electronics (093410)	8
Grand Total		15

Sub-Discipline: Electronics and Electric Technology (0934)
Award Count for El Camino College in Year 2008-2009

Award Type	Program Type	Award Count
Associate of Science (A.S.) degree	Computer Electronics (093410)	3
Certificate requiring 18 to < 30 semester units	Computer Electronics (093410)	4
Certificate requiring 18 to < 30 semester units	Electronics and Electric Technology (093400)	3
Certificate requiring 30 to < 60 semester units	Computer Electronics (093410)	2
Certificate requiring 30 to < 60 semester units	Electronics and Electric Technology (093400)	1
Grand Total		13

**Award Count for El Camino College in Year 2008-2009
Program: Computer Electronics (093410)**

Award Type	Program Type	Award Count
Associate of Science (A.S.) degree	Computer Electronics (093410)	3
Certificate requiring 18 to < 30 semester units	Computer Electronics (093410)	4
Certificate requiring 30 to < 60 semester units	Computer Electronics (093410)	2
Grand Total		9

**Award Count for El Camino College in Year 2009-2010
Program: Electronics and Electric Technology (093400)**

Award Type	Program Type	Award Count
Certificate requiring 18 to < 30 semester units	Electronics and Electric Technology (093400)	1
Grand Total		1

**Award Count for El Camino College in Year 2009-2010
Program: Computer Electronics (093410)**

Award Type	Program Type	Award Count
Associate of Science (A.S.) degree	Computer Electronics (093410)	4
Grand Total		4

Name (Print) _____

ECHT Courses: _____

**EI Camino College SP2011
Electronics and Computer Hardware Technology Student Survey**

1) What is your opinion of the quality and instruction you have received in various Electronics Courses you have taken, here at EI Camino ?

- Very Dissatisfied
- Dissatisfied
- Undecided
- Satisfied
- Very Satisfied

2) How long do you think it would take for you to complete your Certificate or Degree ?

- One Semester
- One Year
- Two Years
- Two to Five Years
- I don't know !

3) Do you believe the instruction you have received will make you more employable or will help you advance in your current job ?

- More Employable
- Job Advancement
- Undecided

4) Do you believe that the equipment used for instruction is well maintained and up to date ?

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

5) I was treated with respect by ECHT faculty and staff

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

6) How many ECHT units have you taken El Camino?

- First Course
- 3-9 units
- 10-12
- 13-30

7) What are your academic goals?

- Transfer to a Four Year University
- Obtain an A.S. Degree in Electronic Technology or Computer Electronics
- Obtain a Certificate in Electronic Technology or Computer Electronics
- Employment skill upgrade
- Career Exploration

8) Do you believe the instruction you have received will either make you more employable, or will help you advance in your current job ?

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

9) How do plan to use your ECHT Associates Degree and or Certificate(s)?

- A Degree in Electrical/Electronic Engineering
- A Degree in Engineering/Industrial Technology
- Couple it with another Degree
- a Job
- Start my own business

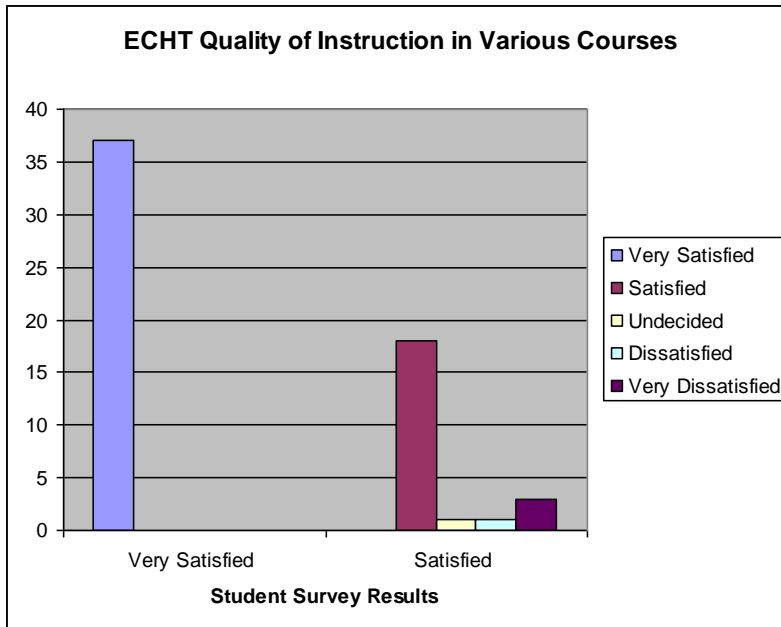
10) How did you hear about the Electronics and Computer Hardware Technology Program ?

- Employer
- Relative
- Classmate
- Counselor
- ECHT Faculty or Staff

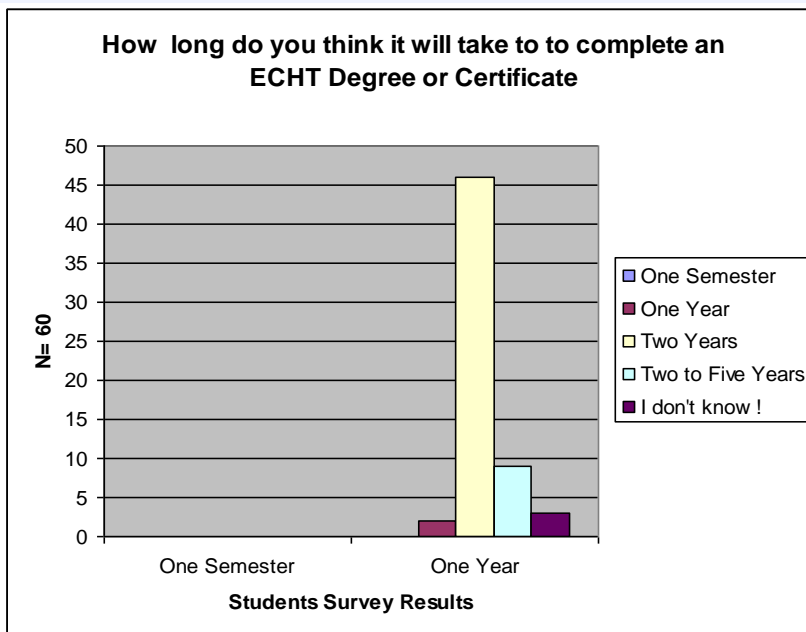
Data Analysis:

The Survey was administered to “six” sections offered during the spring, 2011 Semester. To reduce redundancies, students were asked to print their names and what ECHT classes they are currently enrolled in. Out of a 116 students enrolled in ECHT Sections: 7450,7452,7465,7484, 7486, and 7462, 60 students were identified to be used in the non-duplicating sample.

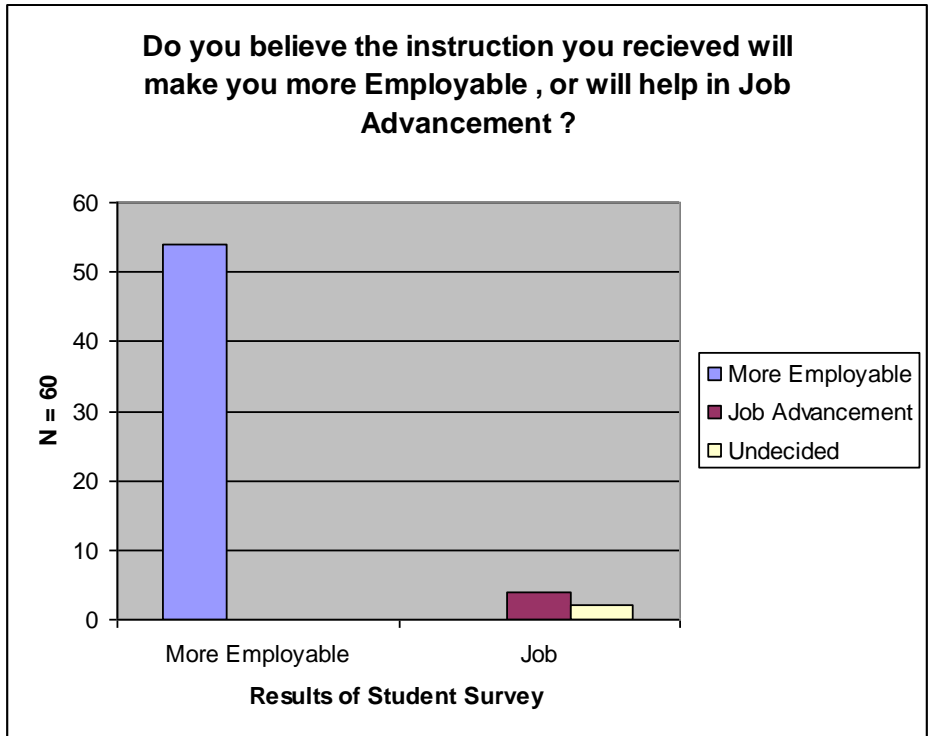
1) What is your opinion of the quality and instruction you have received in various Electronics Courses you have taken, here at El Camino ?



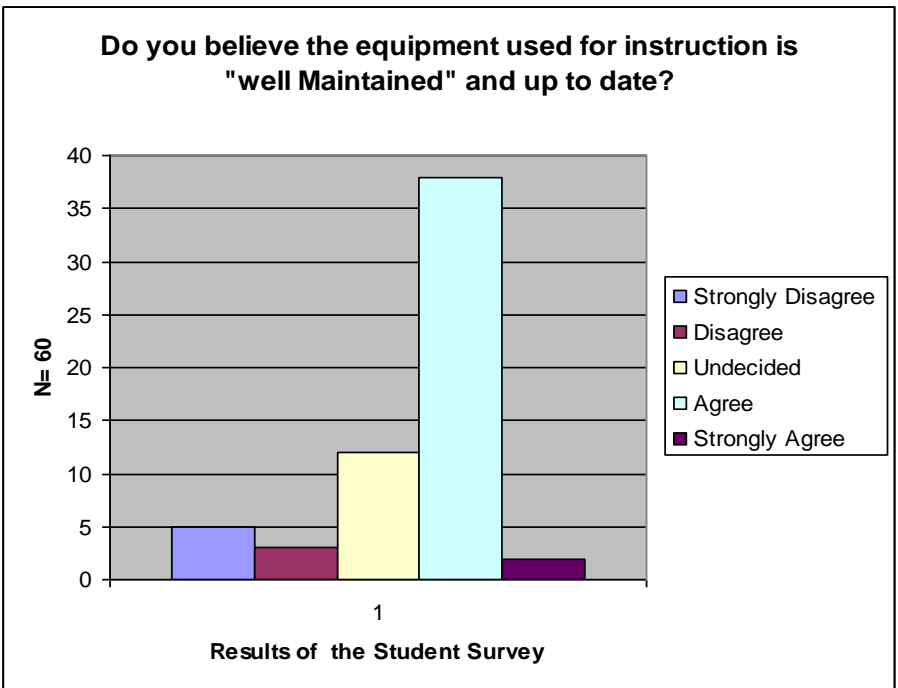
2) How long do you think it would take for you to complete your Certificate or Degree ?



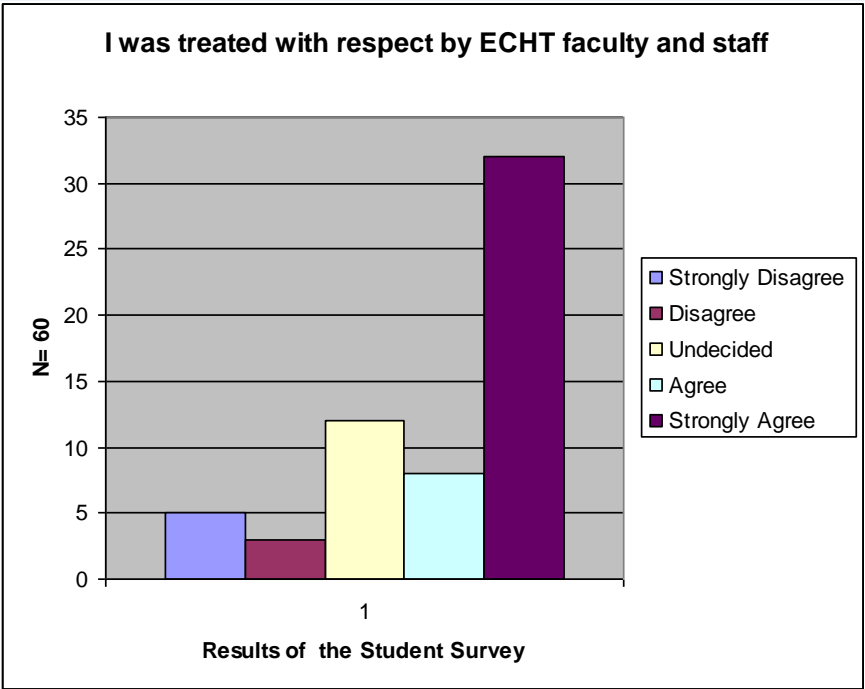
3) Do you believe that the instruction you have received will either make you more employable or will help you advance in your current job ?



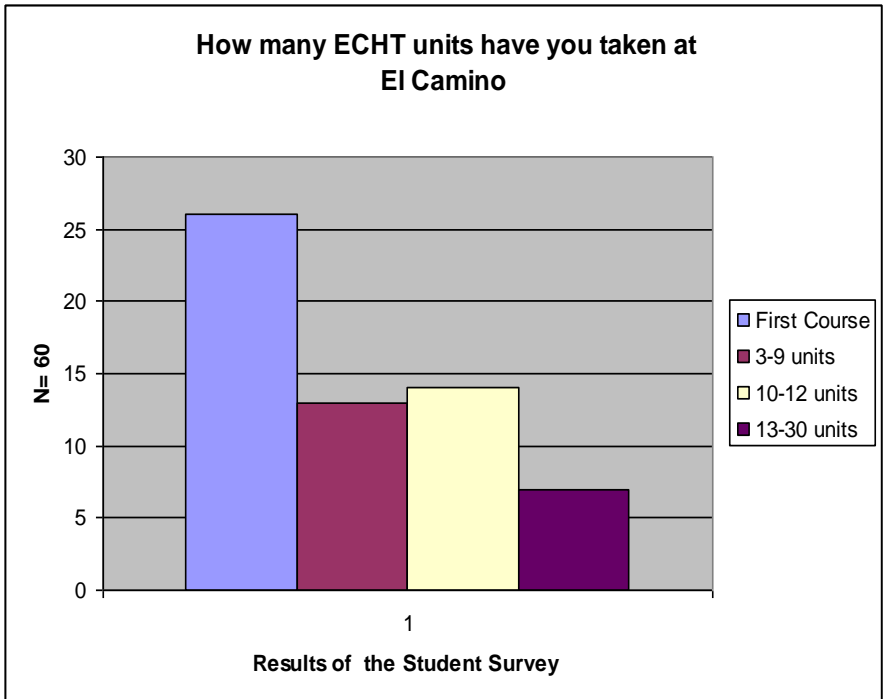
4) Do you believe that the equipment used for instruction is well maintained and up to date ?



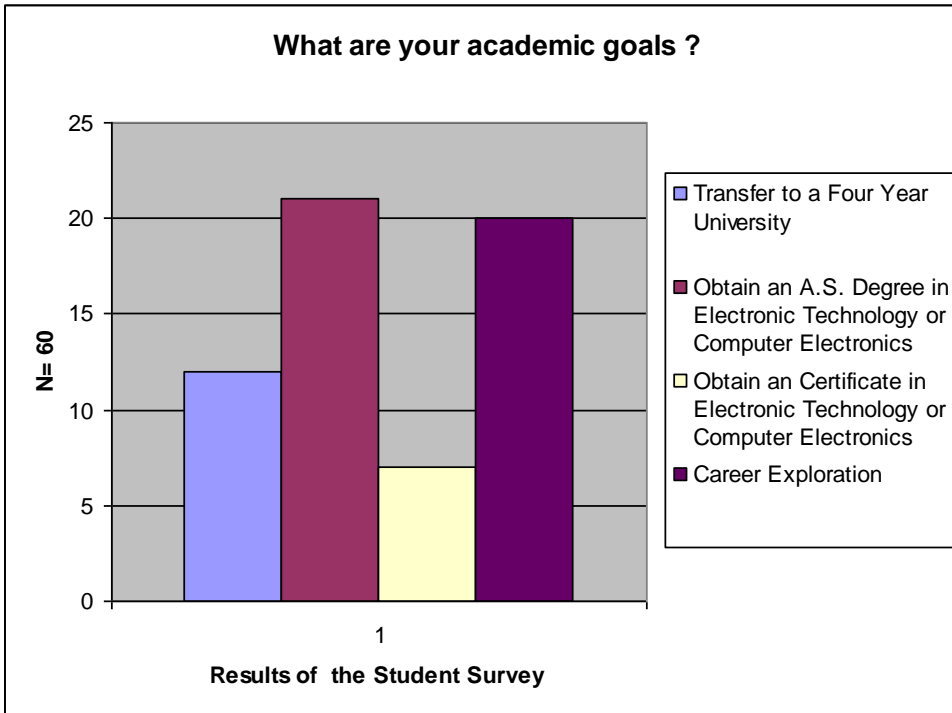
5) I was treated with respect by ECHT faculty and staff



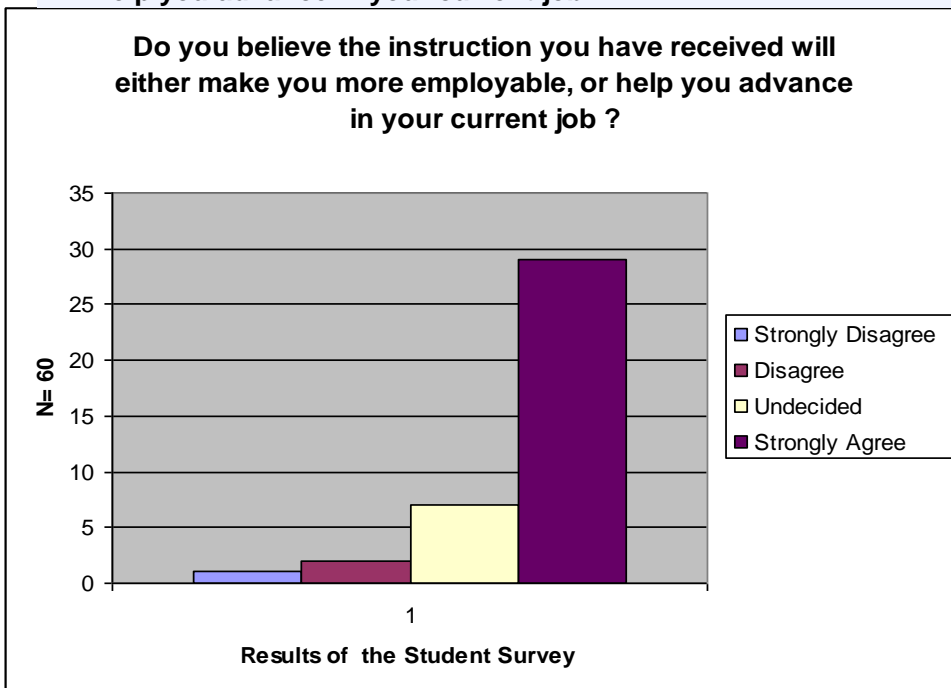
6) How many ECHT units have you taken at EI Camino?



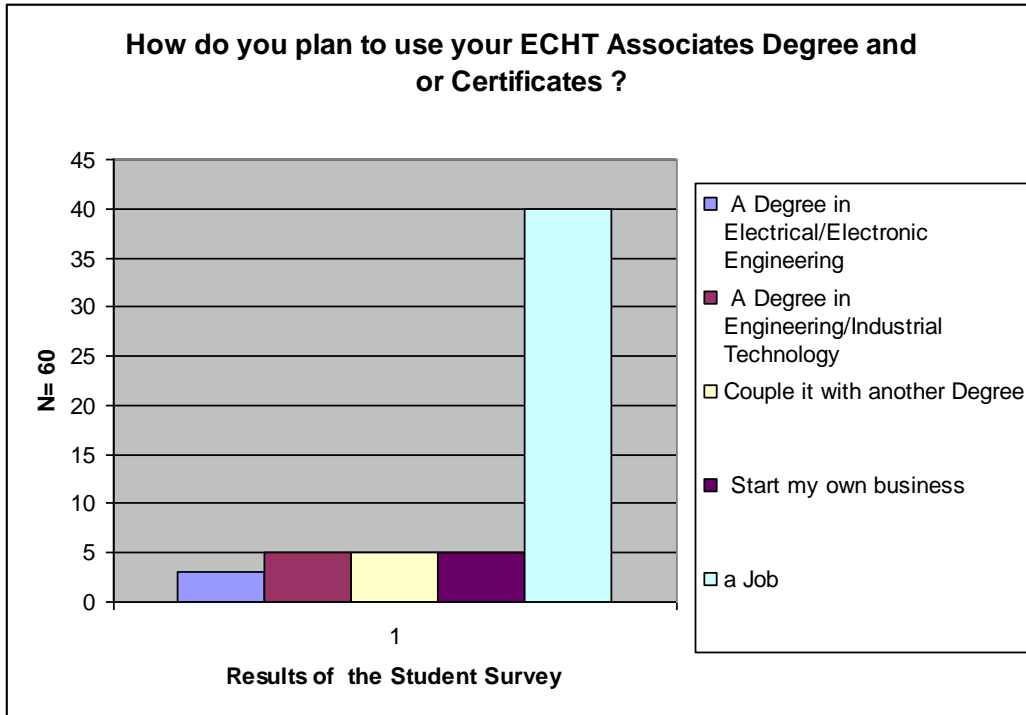
7) What are your academic goals?



8) Do you believe the instruction you have received will either make you more employable, or will help you advance in your current job ?



9) How do plan to use your ECHT Associates Degree and or Certificate(s)?



10) How did you hear about the Electronics and Computer Hardware Technology Program ?

