INSTITUTIONAL ASSESSMENT REPORT

AUTOMATION AND ELECTRICAL CONTROL SYSTEMS / 2012

Department's Relationship to the College Mission and Strategic Plan
(completed Spring semester or on accreditation cycle)

In a paragraph or two, discuss how the department's work carries out the Mission and Strategic Plan.

The goal of the Automation and Electrical Control Systems (A.E.C.S.) department is to increase a student's knowledge of the appropriate subject matter as well as foster an environment rich in critical thinking and interpersonal skills development. We strive to meet these goals by providing a learning environment that utilizes both lecture and hands on experiences aimed at preparing students for their upcoming presence in an industrial work setting.

Summary of Departmental Activities, Assessment and Use of Results
(completed Spring semester or on accreditation cycle)
(may include process flowchart)

Provide a brief overview of major accomplishments since the last review and how assessment results have been used to improve services/learning outcomes.

The department has initiated a significant change in the degree program in an effort to help align the curriculum with the current needs of the workforce. These changes are intended to better prepare our students for the challenges they will face upon leaving the college, as well as stream line their degree path along the way.

- Changes to curriculum
  - Reduction of credit hours where necessary by combining classes that shared common learning objectives.
  - Adding Fundamentals of Alternative Energy class, ETI130. The addition of this course provides students with an opportunity to gain fundamental concepts and practices associated with the growing fields related to alternative energy production.
  - Change in program name to better describe the purpose and scope of the degree.
  - Creation of new program brochures, highlighting the changes that have been made to the department. The brochure provides an up-to-date aid in student recruitment activities.
  - Provide ETA certification opportunities for DC and AC classes. These certifications provide an additional benefit to students in their future employment search.

Internal and External Data Collection and Analysis
(completed by Fall semester or on accreditation cycle)

Gather and analyze relevant internal and external data (link to data).

Electrical and Electronics Repairers, Commercial and Industrial Equipment: Missouri

Location	Pay Period	2011				
		10%	25%	Median	75%	90%
United States	Hourly	$15.66	$20.06	$25.16	$29.90	$35.10
	Yearly	$32,600	$41,700	$52,300	$62,200	$73,000
Missouri	Hourly	$16.89	$21.86	$27.75	$32.69	$35.63
	Yearly	$35,100	$45,500	$57,700	$68,000	$74,100

State and National Trends

United States	Employment		Percent Change	Job Openings [1]
	2010	2020		
Electrical and Electronics Repairers, Commercial and Industrial Equipment	69,100	69,900	+1%	1,770
Missouri	**Employment**		**Percent Change**	**Job Openings [1]**
	2008	**2018**		
Electrical and Electronics Repairers, Commercial and Industrial Equipment	2,000	2,060	+3%	40

Distribution of Educational Attainment

Occupation	Percent of employees aged 25 to 44 in the occupation whose highest level of educational attainment is						
	Less than high school diploma	High school diploma or equivalent	Some college, no degree	Associate's degree	Bachelor's degree	Master's degree	Doctoral or professional degree
Electrical and Electronics Repairers, Commercial and Industrial Equipment	2.2%	34.7%	32.7%	20.4%	8.2%	1.2%	0.5%
Electrical and Electronic Equipment Mechanics, Installers, and Repairers	5.2%	32.6%	33.2%	17.4%	10%	1.2%	0.4%
Installation, Maintenance, and Repair	12.4%	39.6%	27.3%	12.1%	7.2%	1%	0.3%
Total, All Occupations	10.4%	27.4%	20.9%	8.9%	19.5%	8.2%	4.7%

National Data Source: Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections
State Data Source: Missouri Department of Economic Development, Missouri Economic Research and Information Center

State and National Trends

United States	Employment		Percent Change	Job Openings [1]
	2010	2020		
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	23,400	24,600	+5%	690
Missouri	**Employment**		**Percent Change**	**Job Openings [1]**
	2008	**2018**		
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	400	500	+26%	20

Location	Pay Period	2011				
		10%	25%	Median	75%	90%
United States	Hourly	$22.54	$27.37	$32.43	$36.27	$42.05
	Yearly	$46,900	$56,900	$67,500	$75,400	$87,500
Missouri	Hourly	$26.90	$30.71	$33.45	$36.19	$40.65
	Yearly	$56,000	$63,900	$69,600	$75,300	$84,600

National Data Source: Bureau of Labor Statistics, Occupational Employment Statistics Survey
State Data Source: Missouri Wage Information

Analysis

1. The above data represents statistical job trend data for two career paths that a student graduating from the A.E.C.S. program would possibly pursue. The A.E.C.S. program is designed to prepare students for a variety of career options in the electronics field to better their odds for successful job placement.

2. The job trend data from the Missouri Department of Economic Development describes a steady to slightly rising trend in job availability for those students seeking a career as an Electronics Repairer in the industrial or commercial sectors. Additional data from the same source states that there is to be a significant increase in job availability for students seeking a career as Electrical Repairers working at an electrical powerhouse, substation, or relay station.

3. The median yearly wage for a student entering into a career as an Electronics Repairer in the industrial or commercial sector is $57,700 in the state of Missouri. This is approximately $5000 more than the national average. The median yearly wage for a student entering into a career as Electrical Repairers working at an electrical powerhouse, substation, or relay station is $69,600. This is approximately $2000 dollars more than the national average.

4. Approximately 20.4% of those employed as Electronics Repairers in the industrial or commercial sectors have attained an Associate's degree. An additional 32.7% of those same employees have at least some college experience. This combines to a total of 53.1% of those working in the above mentioned fields having spent time in college.

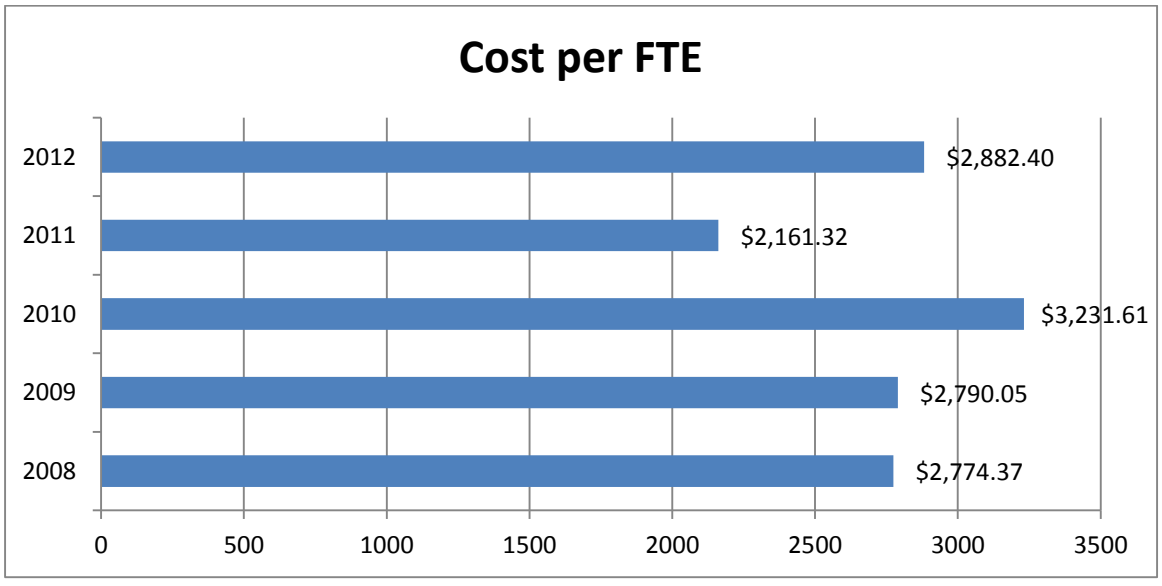
Annual Cost per FTE and Trend Analyses
(completed by Fall semester)

Provide cost per FTE and analyze for the period being evaluated.

The following table and chart show the Electronics (ETC-ETI) cost per FTE since the previous program review:

Electronics Cost per FTE

Year	2008	2009	2010	2011	2012
Credit Hours	1,093	1,107	1,200	1,064	632
FTE	91.08	92.25	100.00	88.67	52.67
Program Cost	$252,698.83	$257,382.18	$323,160.58	$191,636.70	$151,806.49
Cost per FTE	$ 2,774.37	$ 2,790.05	$ 3,231.61	$ 2,161.32	$ 2,882.40



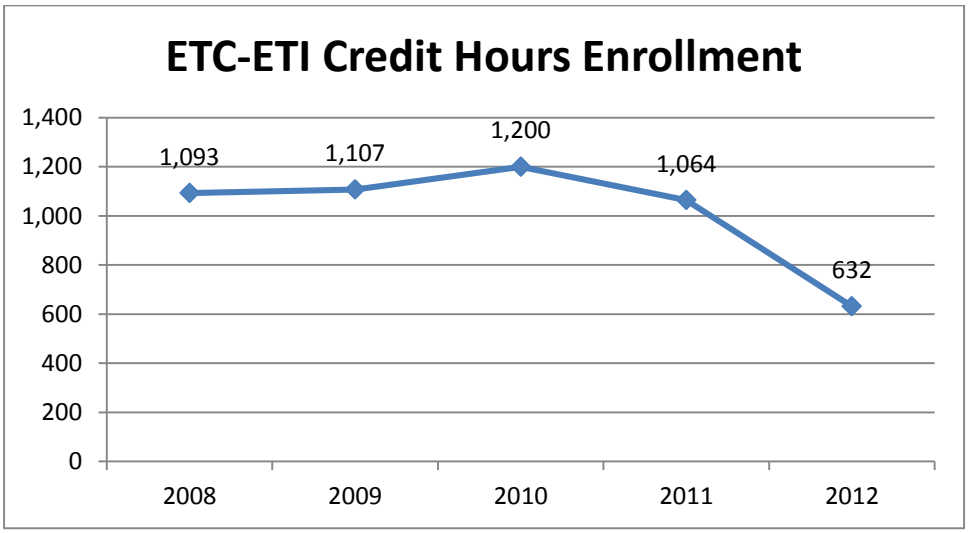
Faculty Indicators for Electronics (ETC-ETI), (School Years 2007-2012)
School Terms 200801 through 201203 (Summer 2007 through Spring 2012)

Number of Course Sections Taught	Total Students	Attrition Number ("W" Grades)	Attrition Percent	Student Credit Hours Earned	Average Students	Average GPA	Annualized 5-Year Program FTE
130	1,143	12	1.0%	4,445	8.8	2.735	29.6

Notes: Attrition % represents the number of "W" grades conferred as a percentage of ALL students.
Annualized Program FTE is the number of graded credit hours divided by 150 (30 hours/yr for 5 years).

Actual Seats Per Year

Academic Year	Seats	Credit Hours
2008	263	1,093
2009	268	1,107
2010	297	1,200
2011	259	1,064
2012	156	632
Totals	**1,243**	**5,096**



Analysis

1. Over the past 5 years the program has had an average yearly cost per FTE of $2,767.95, with slight increases over that amount in 2010 (due to two full time faculty salaries).

2. Electronics is a very cost-efficient and popular program. Currently, there is one full-time faculty member and in the past there was an average of nine adjunct faculty. The program

generates approximately 1,019 credit hours per year with class sections that average approximately 9 students per class.

3. The Electronics program had experienced a slight increase in enrollment through the 2010 school year. However during the 2011 and 2012 school years enrollment has seen a significant decrease. This decrease in enrollment was believed to have been caused by a significant change in full time faculty positions, leading to a reduction in program promotion and advancement. Efforts to restore the program's level of quality, pertinent content, and promotion, are expected to increase the credit hours enrollment during the upcoming years. This expected rise is evidenced by an increase in first year students of the program in the Fall 2012 semester.

4. Course attrition is low at 1% overall and 1.5% for full-time faculty. The attrition for the Electronics program is particularly low.

5. The program currently has one fulltime employee, John McDaniel. This position is a 9.5 month faculty, tenure track contract. The program currently utilizes two adjunct instructors per semester to provide instruction within the classroom. On average we budget approximately 15-20 credit hours per full time faculty member and 10 or less credit hours per adjunct instructor per semester.

SWOT Analysis

(completed by Fall semester)

Using the data collected and analyzed, complete a SWOT analysis. Reference and link data for each.

Internal Strengths	Internal Weaknesses
1. ATS opportunities allow for local high school students to enter the program while completing their high school degree. 2. Local opportunity for a "High Tech" program in Jefferson County. 3. Updated technology and training equipment. 4. Recent knowledge of the electronics' industry allows for coursework to parallel the current trends and technology found in a student's expected work environment. 5. A.A.S. opportunity provides students the ability to earn more than a certificate.	1. Adjunct availability 2. Lack of community awareness of the program. 3. Disconnect between potential transfer options for students to obtain a 4 year degree.
External Opportunities	**External Threats**
1. Provide better promotion of the program through increased or direct advertisement. This would need to be specific to the program itself. 2. Increased community involvement through potential site visits. This opportunity would allow instructors to obtain first hand observation of changes in industry trends and advancements. 3. Newer and updated automation training equipment and instructor training. Continuing our commitment to provide students with updated and applicable training practices.	1. For profit schools that can provide a higher level of community exposure advertising to their programs.

External Accreditation (if applicable)

Not Applicable.

INSTITUTIONAL ACTION PLANS for *Department* / *Year*

Org	Aim	Obj	Action Plan	KPI	$	Other Req	Responsible Party	End Date	Status	Target Year	Metric Desc	Metric Value	Benchmark Desc	Benchmark Value	Target Desc	Target Value

DEPARTMENTAL ACTION PLANS for *AECS* / *2013*

Org	Aim	Obj	Action Plan	KPI	$	Other Req	Responsible Party	End Date	Status	Target Year	Metric Desc	Metric Value	Benchmark Desc	Benchmark Value	Target Desc	Target Value
56506	3	20	To increase community awareness of the AECS program. This will be accomplished by various community and school outreach efforts made during each academic year.	11	0	None	John McDaniel	2015	Developing	2013 2014 2015						
56506	1	10	To build a relationship with a Missouri university that will support a 4 year degree transfer option for AECS students.	3	0	None	John McDaniel	2016	Developing	2014 2015 2016						
56506	4	24	Develop a qualified and diverse adjunct instructor staff that is highly proficient in both technical knowledge and teaching ability.	42	0	None	John McDaniel		Developing	2013 2014 2015						

Evaluation

☐ Meets Expectations
Comments:

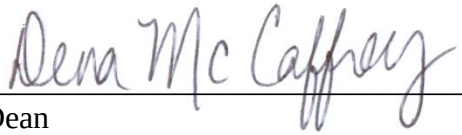
☒ Requires Attention and Submission of a Follow-Up Report
Comments:

☐ Does Not Meet Expectations and Requires Submission of a Follow-Up Report
Comments:

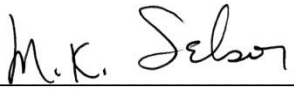
Follow-up report required by: September 30, 2013 (Date)
Comments:

Approvals

Division Chair/Director — Oct. 31, 2012 (Date)
Comments:



Dean — Oct. 31, 2012 (Date)
Comments:



Vice President/President — January 31, 2013 (Date)
Comments: