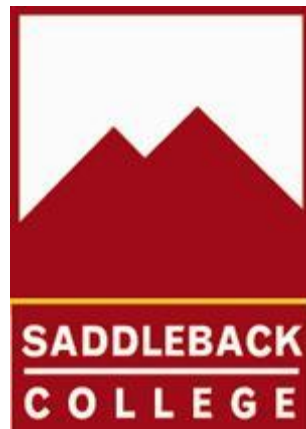


# **Saddleback College Program Review for Electronic Technology**



**Submitted 11/22/2011**

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## **Program Review Team Members**

Program Review Team Chair:

**Eugene J. Evancoe**

Program Review Team Members:

**Knute Josifek**

**Thomas Smith**

## Program Review Checklist

Date Completed	Action
10/7/11	Contact EPA Chair for orientation
10/8/11	Form Program Review Team (PRT)
10/14/11	Gather documents (Org Chart/Staffing Profile/SLO Assessment Forms/Data Sets)
10/15/11	Solicit input from faculty and students
10/15/11	Determine if additional research is needed
10/15/11	Contact College Research Specialist if necessary
11/18/11	Write Program Review report
11/22/11	Submit report to Dean and EPA Chair for review
	Report submitted to Academic Senate for acceptance
	Report submitted to the President and the Vice President of instruction
	Report posted to the EPA web site
	Presentation to the Consultation Council

## Section I: Program Overview

### A. A. The Mission of the Program and its Link to the College's Mission, Vision, and Strategic Directions

The mission of the Electronic Technology program is to provide high quality technical instruction, career preparation, and career upgrading skills in Electronic Technology which are technologically up to date and relevant to the needs of the local electronics industry. In particular, the program serves three distinct purposes:

- 1) Provide technical/vocational certificates in Electronic Technology for persons intending to work in the field.
- 2) Provide basic courses for transfer to a four year institution in Electronic Technology, Engineering Technology, Industrial Technology, or a related field.
- 3) Provide skill updating and upgrading for persons in the electronics industry or related fields.

The mission of the program links directly to the mission of Saddleback College. In the context of electronic technology, the program mission, which was described specifically above, aligns with the mission of the College by providing courses and a program to foster student learning and success in the attainment of the ET certificate and lifelong learning in electronics. In addition to the complete certificate, the ET program provides continuing education in electronics, including courses for skills upgrading and retraining for professionals in the electronics industry and related fields. Some students are interested in the field for general knowledge or as a hobby, and the courses provide life-long learning opportunities in electronics. The Electronic Technology courses and program, with varied learning experiences for a variety of students and student goals and needs, directly support the College mission

The mission of the program also links directly to the vision of Saddleback College by providing dynamic, innovative, and student-centered education in electronic technology. The program simultaneously helps fulfill the fourth strategic direction of the College, employ innovative ways to enhance programs and meet increasing student and workforce demands. Because of the constantly changing technology of electronics, the Electronic Technology program and courses are continually changing to be up to date, dynamic, and innovative. High quality courses and certificates enable students to pursue their educational objectives and career goals in electronics and related fields. Many of today's occupations involve electronics or are closely related to the field, and the program enables a variety of students to gain knowledge they desire about electronics by completing a full certificate or individual courses of interest. The Electronic Technology program leads to the Associate of Arts (AA) and Associate of Science (AS) degrees. Electronic Technology courses can accompany the required general education courses to meet the complete degree requirements. Electronic Technology is a possible major program at the College as part of either the AA or AS degree.

## **B. Historical Background and Unique Characteristics of the Program**

The Electronic Technology program has been at Saddleback College for about 25 years. The program, including the certificates and individual courses, has gone through numerous changes and updates in both curriculum and equipment in accordance with changes and technological developments in the electronics field. At the same time, the beginning fundamentals courses have stayed mostly the same. There are presently three certificates in Electronic Technology – General, Analog and Digital Circuits, and Digital Electronic Technology. Each certificate includes three core courses plus other courses specific to each certificate. The program will continue to include both the fundamentals and also areas which will be updated or introduced new with the continually changing technology of electronics. All courses include approximately equal classroom and laboratory hours.

The program is distinct from others which are mainly theoretical (university engineering programs), and others at some community colleges and technical institutes which are much less rigorous in theory. The Saddleback College Electronic Technology program is midway between the theoretical and hands-on emphasis. Both theoretical and hands-on laboratory skills are included in a balance primarily to prepare students for entry level employment as an electronic technician. The laboratory exercises and equipment also include both basics and more advanced aspects for modern technological subjects in electronics.

## **C. Progress Since the Last Program Review**

The program has improved since the last review in 2009 in both number of students and productivity (WSCH/FTE). The general Orange County economy and local electronics industry have been in a downturn the past two years. We have offered about the same number of Electronic Technology classes as in the past, with significant enrollment increases in all of our classes. We have not added new courses, equipment, or facilities, so present personnel and support levels are still adequate until the program expands. Several new members have joined our advisory committee and have given valuable suggestions. Publicity and marketing of the program is still inadequate. The department chair (and only full time faculty) has not been able to devote adequate additional time to recruiting and publicity, and we have not received substantial help from other college personnel. We will support new grant proposals in the future, but as of now no awards have been received by the College which involve the Electronic Technology department.

## **D. Discussion of How SLOs Have Been Utilized By the Program**

Each semester we have evaluated SLOs at both the course and program level. The results have been used to revise and fine tune the individual courses, in both the classroom and laboratory aspects, plus the methods and details of class delivery by instructors. Two of the program level SLO's listed in the Appendix were not met this past year, and we are covering those topics more thoroughly now.

## E. Current Strengths, Opportunities, and Challenges

The current strengths of the program are as follows:

- 1) High quality certificates and courses in both the fundamentals (core courses) and advanced topics which cover both the theoretical and practical hands-on aspects of the subjects.
- 2) Most lab equipment is modern and up to date and of sufficient variety to accommodate a wide range of electronics courses.
- 3) The instructors have extensive industry experience in electronics.
- 4) The classes are pertinent to local industry and occupational needs.

The main opportunities are as follows:

- 1) We can expand, update, and add most advanced courses as needed without extensive cost using the facilities and equipment we have. There will be some exceptions for specialized courses, but our present facilities will allow us to accommodate most changes. If necessary, we can attach materials fees to the associated courses.
- 2) With the general working world becoming increasingly more electronic, more workers will need knowledge of basic electronics, and we can meet that need with our courses which include both theoretical and hands-on aspects. Local companies regularly provide input and critique of our curriculum as it pertains to their company needs both for basic and advanced topics and skills.
- 3) Local companies are experiencing presently or expecting a large number of retirements in the near future, and there will be a need for trained technical professionals in electronics in many industries.

The main challenges are as follows:

- 1) Increase and stabilize the enrollments in all courses so that a regular and predictable sequence of courses can be offered and students can plan for and complete the certificates in a timely manner. Some advanced classes are offered only every 4 semesters due to College class size requirements.
- 2) Offer updated and new advanced classes in accordance with industry changes and needs, technological advances, and advisory committee recommendations. When required, acquire additional equipment.
- 3) Replace existing equipment which is no longer serviceable because of age.
- 4) Expand our pool of part-time instructors for all classes to cover possible absences in the future and specialty classes.
- 5) Determine appropriate audiences of potential students and market and publicize the program to them.

## Section II: Review Report

### A. Faculty and Staff

The staffing structure for the Electronic Technology program includes one full-time professor and department chair who works in both Electronic Technology and Computer Maintenance Technology (Eugene Evancoe), one quarter ( $\frac{1}{4}$ ) time lab assistant who is also shared between the two programs (Tom Smith), and one part-time faculty member. The exact percentage of time spent on Electronic Technology versus Computer Maintenance Technology changes for each person varies slightly according to the number and nature of classes offered in each program each semester. The program organizational chart and staffing profile are included later in this review.

The current staffing structure is adequate at present but insufficient for any significant growth. Additional classes could be handled by part-time faculty, but more support by the lab technician will also be required. The present ratio (for the 2011-12 school year of full-time to part-time faculty is about 1.33 to 1. This ratio is satisfactory, with the present class offerings, to fulfill the mission and goals of the program.

To make the Electronic Technology program more effective in the future as growth occurs and new, more complex courses and equipment are added, more support by the laboratory technician will be required. We estimate this need at about 6 hours more per week (includes both Electronic Technology and Computer Maintenance Technology combined, to bring the technician to a minimum of 20 hours total per week for both programs.

### B. Curriculum and Instruction

The course offerings in Electronic Technology provide paths to AS and AA degrees (Electronic Technology is a major), technical/vocational certificates in Electronic Technology, and in the case of some beginning classes, transfer to some universities. The present course offerings support the program and College missions and goals as described previously. Regular and timely offering of courses is very important to student success and having a quality academic program.

The program's courses are evaluated by course evaluation forms completed by students at the end of courses, informal feedback from students continuously during courses, review by our advisory committee and the success rate of accomplishing our Student Learning Outcomes (SLO's). We are actively using SLO's for both assessment and improvement of our courses and the Electronic Technology program as a whole. With each year we will gather more information about different aspects of courses so that we can continually determine what to retain, revise, delete, and add at the course and program levels.

In order to improve instruction in Electronic Technology courses, we use various technology resources, such as computer aided analysis and simulations, and online supplements for textbooks. These include PowerPoint slides and animations to accompany our class presentations, practice tests, and catalogs, application notes, and technical articles from the websites of electronics companies and vendors. Online learning sources (for example, HowStuffWorks.com) are also frequently used.

The program has both strengths and needs in terms of curriculum. On the positive side, our instructors all have extensive industry experience in electronics and bring practical examples and insight to the classroom. Our classroom and labs are adequately equipped with computer resources, internet access, computer-aided software, and overhead projectors so that our instructor can use current technology in instruction. A large negative is that we have only one electronics classroom and the seating arrangement of the electronics labs is not good for classroom presentations. If more than one class (Electronics and/or Computer Maintenance) needs the classroom at the same time (which often happens with evening classes), usually the class with a smaller enrollment is moved to a lab, resulting in a less than desirable learning environment for those students. We minimize, but cannot always avoid, concurrent classes which need a classroom, and we need a second classroom or one of the labs to be reconfigured, which would require replacing the existing lab benches with a different style and arrangement, so the room could double as a lab and classroom.

In addition to the need for an additional classroom discussed above, other needed changes for the program to be more effective are the continual updating of the technical content of most courses and adding and deleting advanced electronics courses according to technology changes and updates and the needs of local electronics companies. We also may need to recruit instructors with expertise in specialized technical areas or retrain present staff for new classes.

### **C. Student Success**

The students in the Electronic Technology classes come from a wide age span and diverse educational goals. According to the Data Set from the past five years, the age category with the largest percentage of students is 18-21, followed by 22-29. In terms of educational goal, the largest percentage of students desire to obtain a Bachelors degree after Associate. The next highest educational goal is to advance in their current job/career. Obtaining a vocational certificate or two year occupational training was well below the top two as an educational goal.

Some students come from college support services, such as DSPS and EOPS, and these students are supported and accommodated appropriately in the Electronic Technology classes. Students with learning needs in topics being covered (for example algebra or scientific calculator usage) are referred to tutoring services on campus (Learning Assistance Program). When the LAP does not have a tutor in the area of need, which is often the case in specific electronics topics, then our instructors offer individual assistance. We try to keep each student appraised of pending difficulty right away so that help can be offered before it is too late.

The main strength of the Electronic Technology program in the area of student success is the smaller size of classes which allow personal attention to students by instructors. We monitor the progress and possible learning difficulties of each student and provide or refer the appropriate assistance. The size allows good class interaction and communication and addressing of difficulties with particular topics. Our difficulties in student success are the widely different academic backgrounds of students in math and general study skills, and also the differences in motivation and academic work ethic. We are continually evaluating and the adjusting the rigor and pace of the classes to keep the academic integrity of each course while trying to accommodate the learning needs of most of the students in each particular class. According to the Data Set, our success rates have stayed approximately constant and the retention rates have varied somewhat over the past five years. There have been ups and

downs but no clear or sustained trends. Both have been slightly below the College average, likely because of the above average difficulty and time requirements of the courses.

Needed changes in the areas of student success are continual improvement in the success and retention of students, particularly in the beginning classes, without compromising academic quality. In order to accomplish this, more College support will be needed for students lacking in basic math skills, such as scientific calculator usage and beginning algebra. The SLO's will continue to help us identify areas needing improvement and verify our progress.

#### **D. Facilities, Technical Infrastructure, and Resources**

The present amount of space is adequate unless we add a specialty course that requires a dedicated lab. As mentioned previously, one of the labs needs to be reconfigured so that it can also be used as a classroom. The present setup of labs having benches with high tops is not good for classroom presentations and activities, and the scheduling of concurrent evening classes necessitates two classrooms which can be used simultaneously.

The information technology presently available is adequate for the program. The library holdings presently available are adequate for the program.

The present lab equipment, as long as it remains functional, is adequate for the program, but there is the constant challenge and need of maintenance and repair. Several instruments have been discontinued by their manufacturer (in favor of newer models not required or owned by the program). Consequently, it becomes very difficult or impossible to get the present equipment repaired or order replacement parts. In those cases new or reconditioned used equipment must be ordered. This is difficult to predict, but a prudent solution would be to assign a lifetime and implement a replacement cycle for all equipment in an equipment plan for the department.

#### **E. Service, Community Outreach, and Economic Development (optional)**

The Electronic Technology program reaches out to the local electronics industry and tries to meet the employment and training needs of the companies through our program. The Electronic Technology advisory committee includes representatives from about ten local electronics companies. The committee meets annually with our faculty and staff to review the curriculum and lab facilities of the Electronic Technology program and give recommendations in relation to present and future industry needs for electronic technicians. Sometimes Saddleback College receives donations or discounts on laboratory equipment, invitations for class field trips at company sites, and announcements of full and part-time employment opportunities for our students. The companies on our advisory committee also announce our program and classes to employees.

Our faculty also publicizes the Electronic Technology program at local high school career centers and some science classes. There are no longer electronics programs at any local high schools or ROP's, so we have no direct way to recruit high school or ROP students into the Electronic Technology program. We also participate in various other community outreach programs, such as high school senior and parent events at Saddleback College.

## **Section III: Needs Assessment**

### **A. Human Resource Needs**

If new classes are added, we need an increase in the weekly support of the lab technician by about 6 additional hours (includes time for both Electronic Technology and Computer Maintenance Technology) and additional instructors. The present level of one full time faculty is adequate (for both Electronic Technology and Computer Maintenance Technology).

### **B. Instructional Needs**

Present instructional support is adequate unless the program expands.

### **C. Research Needs**

We need research of the local electronics industry with respect to employment projections and training needs of employees and also to recruit new members of the Electronic Technology advisory committee. We also need to determine other programs at Saddleback that could include some of our classes as part of their certificates or programs.

### **D. Technical, Equipment and Other Resource Needs**

Most of our present lab equipment is no longer supported by the manufacturers. As long as the instruments do not need repair, our equipment is sufficient for our present classes. If we add any new courses or subjects in the future, additional equipment may be required, such as fiber optics or industrial electronics, or measurement and instrumentation.

To support projected near-term needs and additional courses, we will require the following equipment (in addition to what we already have in the electronics labs)::

- 1) 4 spectrum analyzers.
- 2) 4 logic analyzers
- 3) 4 current probes
- 4) 4 differential probes
- 5) 4 soldering vacuums
- 6) 20 analog or combination analog/digital oscilloscopes
- 7) 20 Prop scopes (combination scope/spectrum analyzer/logic analyzer) if items 1,2, and 6 are not obtained.

### **E. Facilities Needs**

We still need one additional classroom or one of our labs to be reconfigured to double as a classroom and lab so that concurrent classes which need a classroom can be offered. We need to maintain two electronics labs for concurrent use.

## **F. Marketing and Outreach Needs**

The program and classes still need to be better marketed and publicized to sources of potential students, such as electronics companies, high schools and ROP's, and other appropriate places in the local community. This has been done almost exclusively by the program faculty in the past, and that level of support has been inadequate. This program is a vocational program that is mostly not transferable and does not contain any general education classes, so building enrollments and recruiting students will always be needed. Additional assistance and support of about 2 hours per week is needed from the College because of the limitations of faculty in time and access to data and resources needed to effectively recruit students continually. The program faculty will continue to recruit students, but we need support from the College to have a more organized, thorough, consistent, and sustained effort in attacking our enrollment and recruitment challenges.

## Section IV: Appendices

### A. Program Organizational Chart

Division of Advanced Technology and Applied Science  
(Dean Don Taylor)

Electronic Technology Program  
(Department Chair Eugene Evancoe)

Faculty  
(Full time Eugene Evancoe,  
Part time Knute Josifek and Farah Toosi)

Part Time Lab Technician  
(Tom Smith)

### B. Five-Year Program Staffing Profile

#### Five-Year Program Staffing Profile

Position	Staffing Levels for Each of the Previous Five Years					% Change from Year 1 to Year 5
	2006	2007	2008	2009	2010	
Administration (ATAS Dean)	1	1	1	1	1	0
Bargaining Classified Staff FT	0	0	0	0	0	0
Bargaining Classified Staff PT	0.125	0.125	0.125	0.125	0.125	0
Non-bargaining Classified Staff FT	0	0	0	0	0	0
Non-bargaining Classified Staff PT	0	0	0	0	0	0
Student Workers	0	0	0	0	0	0
Faculty FT	0.5	0.5	0.5	0.5	0.5	0
Faculty PT	0.68	0.59	0.59	0.59	0.52	-24

## C. SLO Assessment Forms (Program Level)

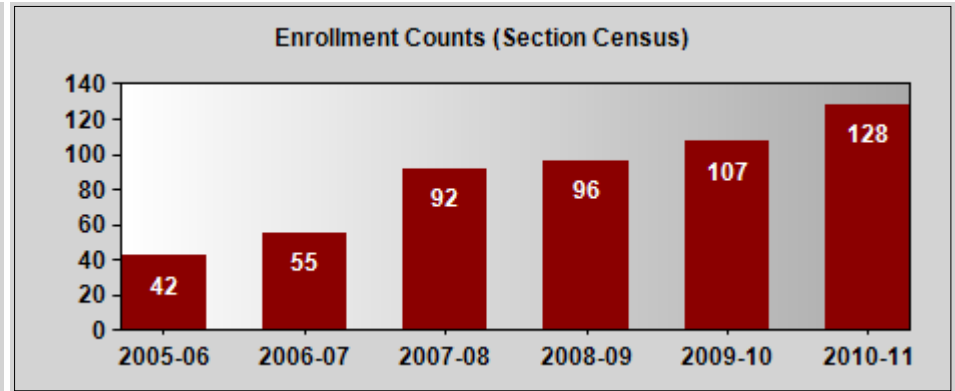
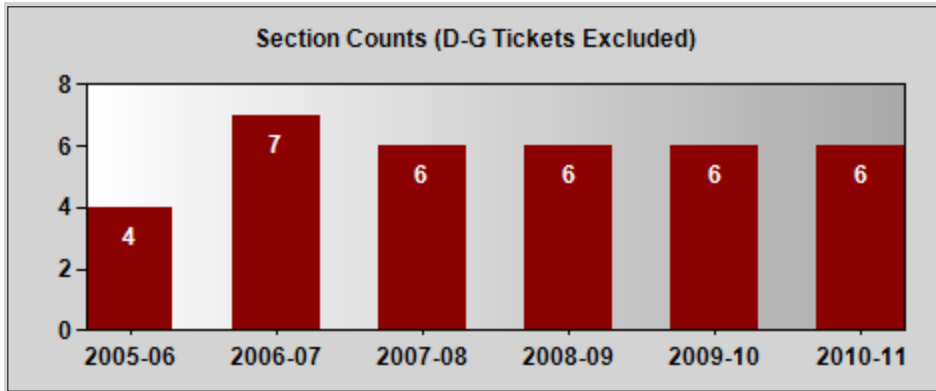
### Electronic Technology 05/11

I Expanded Statement of Institutional Purpose	II Program Student Learning Outcomes	III Assessment Method and Criteria for Success	IV Assessment Results	V Use of Results
<p>Electronic Technology program:</p> <p>The ET program provides quality technical instruction, career preparation, and career upgrading skills in Electronic Technology.</p>	<p>1. Students who complete ET classes will be satisfied with information and concepts they gained from each class in the program.</p> <p>2. Students shall be able to calculate the performance of basic DC/AC resistive circuits.</p>	<p>1. At the end of each ET class a student satisfaction survey will given and the results tabulated. For each class at least 80% of the students surveyed will indicate that they are satisfied.</p> <p>2. At the end of the DC/AC Fundamentals course, students will be given a DC/AC resistive circuit to analyze, and the answers will be graded and tabulated. At least 80% of the students will successfully calculate the performance of the circuit.</p>	<p>1. At the end of the 2010-11 school year 90 % of respondents indicated satisfaction when assessed by the distribution of a generic survey.</p> <p>2. During the 2010-11 school year 61 % of the students tested successfully calculated the performance of a basic resistive circuit.</p>	<p>1. Objective was met above the expected outcome; we will continue to monitor student satisfaction and academic needs within the classes of the program.</p> <p>2. Objective was uncharacteristically well below the expected outcome; We will continue to monitor the student outcomes and look for ways to improve.</p>

I	II	III	IV	V
Expanded Statement of Institutional Purpose	Program Student Learning Outcomes	Assessment Method and Criteria for Success	Assessment Results	Use of Results
	<p>3. Students shall be able to calculate the frequency response characteristics of passive RLC filters.</p>	<p>3. At the end of the DC/AC Fundamentals course, students will be given an RLC passive filter to analyze, and the answers will be graded and tabulated. At least 80% of the students will successfully calculate the performance of the filter.</p>	<p>3. During the 2010-11 school year 66 % of the students tested successfully analyzed an RLC passive filter.</p>	<p>3. Objective was below the expected outcome; we will continue to monitor the student outcomes and look for ways to improve.</p>

I	II	III	IV	V
Expanded Statement of Institutional Purpose	Program Student Learning Outcomes	Assessment Method and Criteria for Success	Assessment Results	Use of Results
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## D. Data Sets

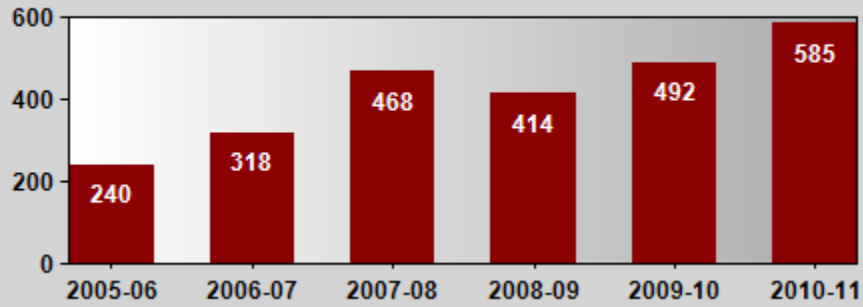


E.

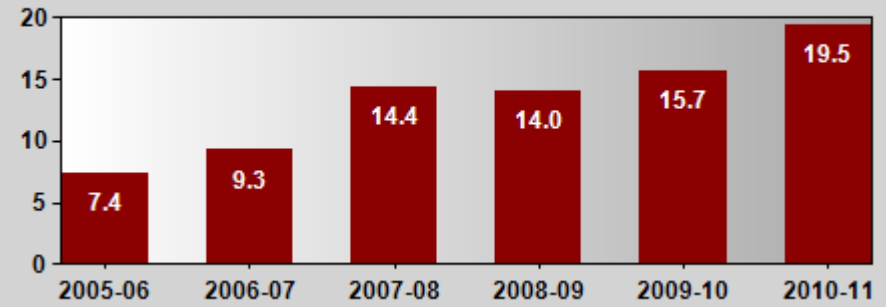
Course ID	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
ET 101	1	1	1	1	1	1
ET 110		1				
ET 133	3	3	2	2	2	2
ET 135		1	1	1	1	1
ET 201				2	2	2
ET 202						
ET 289		1	2			
<b>Total Sections</b>	<b>4</b>	<b>7</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>

Course ID	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
ET 101	10	9	19	26	24	32
ET 110		8				
ET 133	32	23	38	30	35	49
ET 135		6	13	13	15	13
ET 201				22	25	22
ET 202						12
ET 289		9	22	5	8	
<b>Total Enrollments</b>	<b>42</b>	<b>55</b>	<b>92</b>	<b>96</b>	<b>107</b>	<b>128</b>

Weekly Student Contact Hours (Section Census)

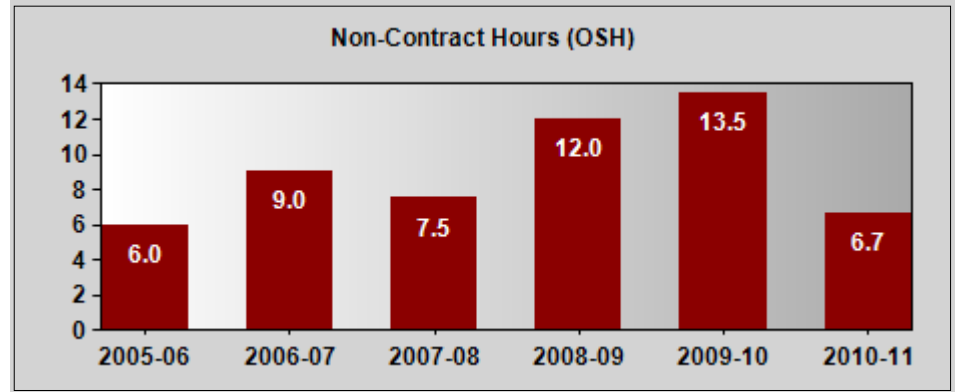
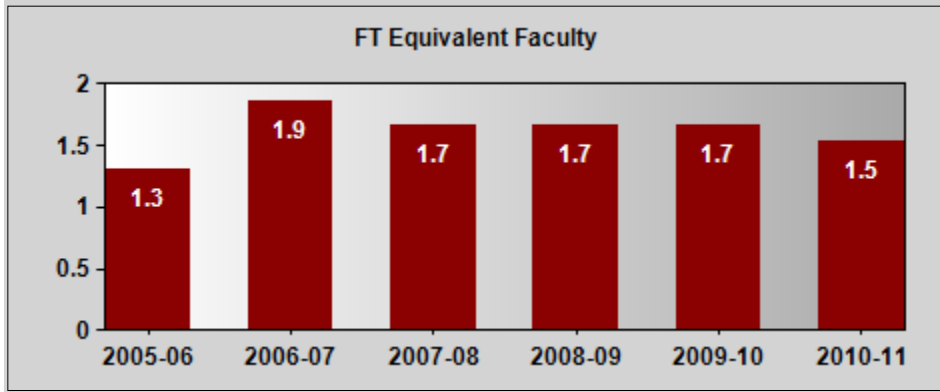


FT Equivalent Students (Section Census)



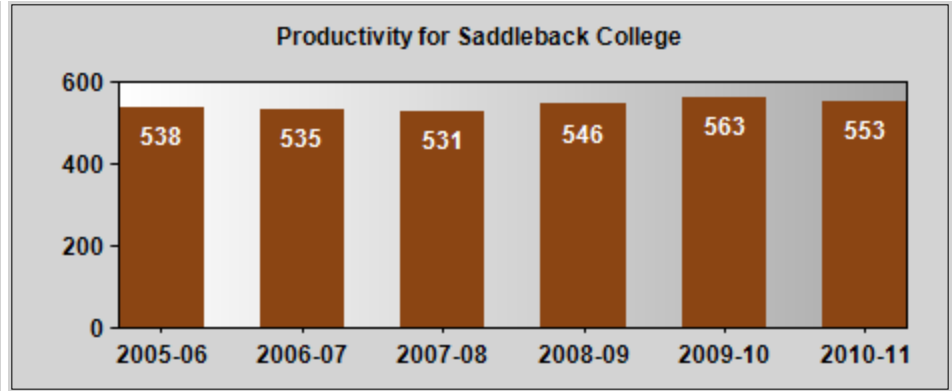
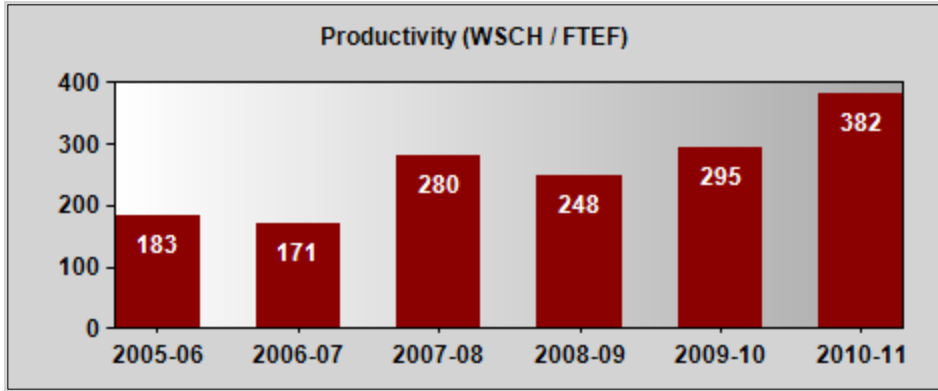
Course ID	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
ET 101	48	69	60	75	93	111
ET 110		48				
ET 133	192	138	264	180	210	294
ET 135		36	78	78	90	78
ET 201				81	99	102
ET 202						
ET 289		27	66			
<b>Total WSCH</b>	240	318	468	414	492	585

Course ID	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
ET 101	1	.9	1.9	2.6	2.4	3.2
ET 110		1.6				
ET 133	6.4	4.6	7.6	6	7	10.1
ET 135		1.2	2.6	2.6	3	2.6
ET 201				2.3	2.5	2.3
ET 202						1.2
ET 289		1	2.3	.5	.8	
<b>Total FTES</b>	7.4	9.3	14.4	14.0	15.7	19.5

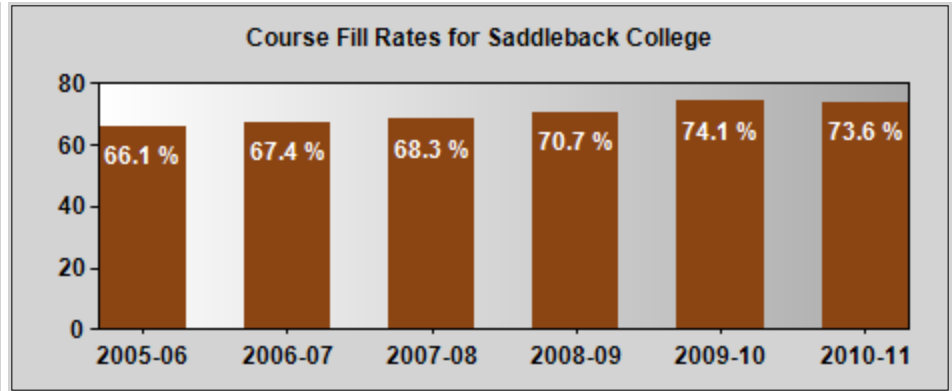
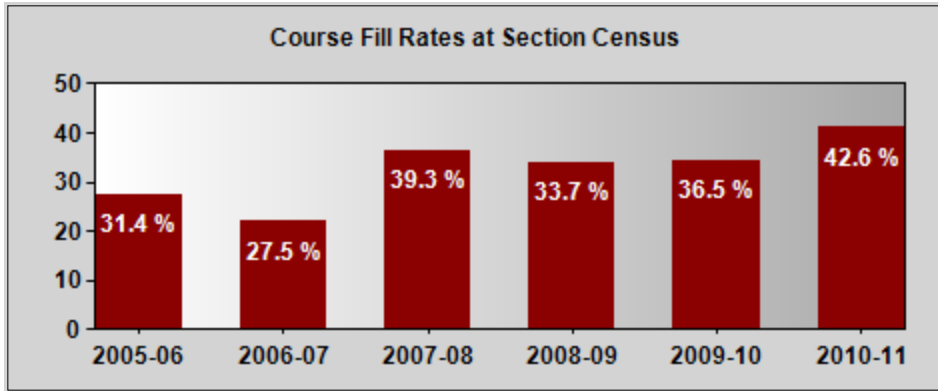


Course ID	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
ET 101	.2	.2	.2	.2	.2	.2
ET 110		.37				
ET 133	1.11	.74	.74	.74	.74	.74
ET 135		.37	.37	.37	.37	.29
ET 201				.36	.36	.3
ET 202						
ET 289		.18	.36			
<b>Total FTEF</b>	<b>1.31</b>	<b>1.86</b>	<b>1.67</b>	<b>1.67</b>	<b>1.67</b>	<b>1.53</b>

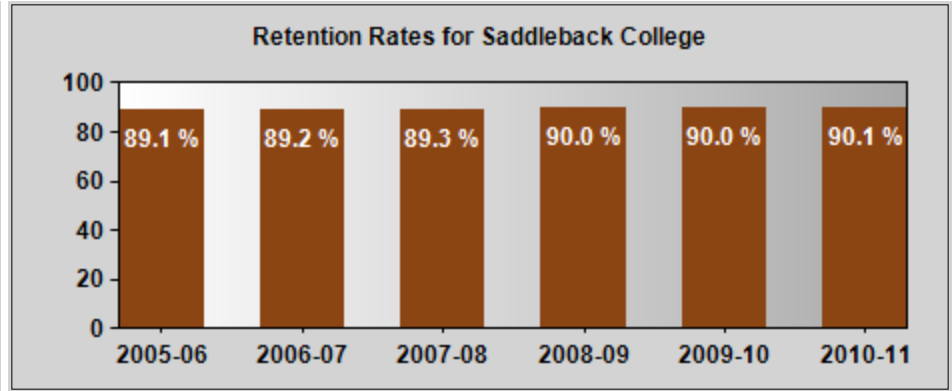
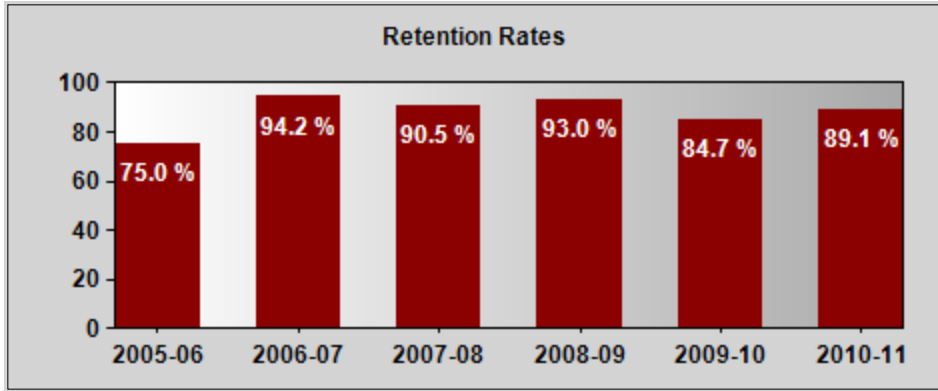
Course ID	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
ET 101						
ET 110		6				
ET 133	6			6	6	
ET 135			6	6	6	5
ET 201					2	2
ET 202						
ET 289		3	2			
<b>Total OSH</b>	<b>6</b>	<b>9</b>	<b>8</b>	<b>12</b>	<b>14</b>	<b>7</b>



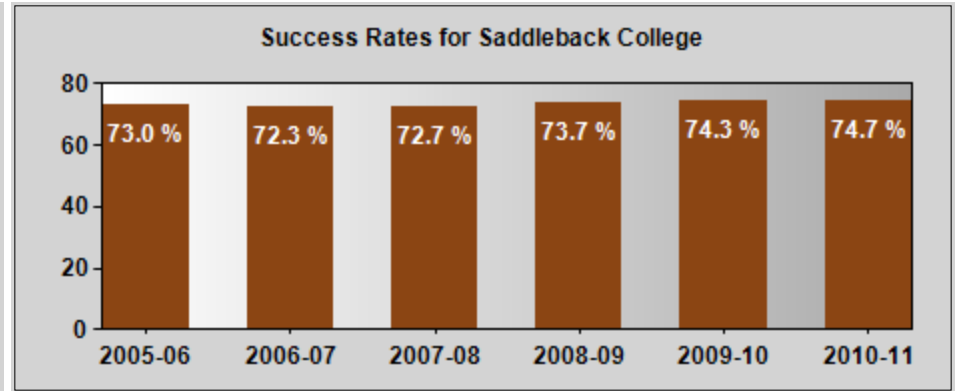
Course ID	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
ET 101	240	345	300	375	465	555
ET 110		130				
ET 133	173	186	357	243	284	397
ET 135		97	211	211	243	269
ET 201				225	275	340
ET 202						
ET 289		150	183			
<b>Productivity</b>	183	171	280	248	295	382



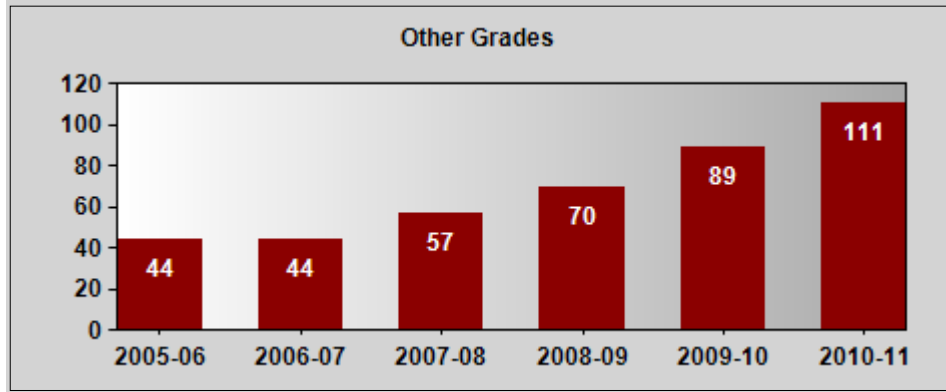
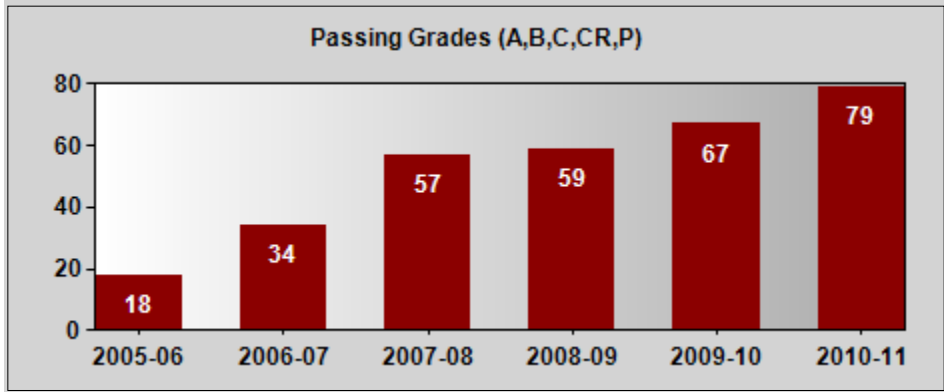
Course ID	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
ET 101	22.2	20	21.1	28.9	26.7	35.6
ET 110		25				
ET 133	29.6	21.3	52.8	41.7	48.6	68.1
ET 135		16.7	43.3	43.3	50	43.3
ET 201				36.7	41.7	36.7
ET 202						20
ET 289		30	36.7	16.7	13.3	
<b>Course Fill Rates</b>	27.5	21.9	36.5	34.0	34.3	41.0



Course ID	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
ET 101	87.5	88.9	88.2	100	90.9	87.1
ET 110		100				
ET 133	71.4	90.5	88.2	91.7	75	86.7
ET 135		100	100	69.2	92.3	91.7
ET 201				100	87	100
ET 202						80
ET 289		100	90	100	87.5	
<b>Retention Rate</b>	75.0	94.2	90.5	93.0	84.7	89.1

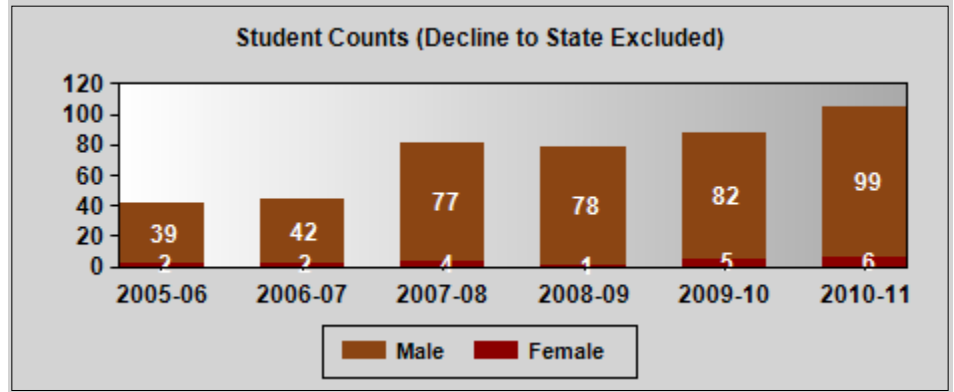
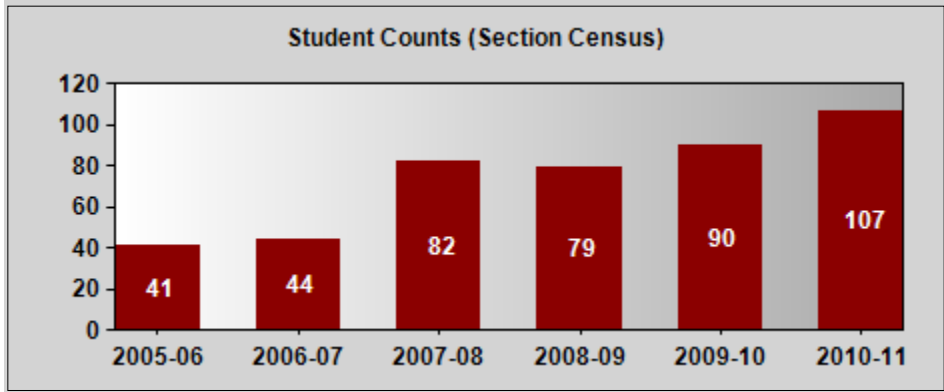


Course ID	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
ET 101	50.0	33.3	47.1	58.3	63.6	61.3
ET 110	0.0	100.0	0.0	0.0	0.0	0.0
ET 133	50.0	47.6	64.7	66.7	56.3	66.7
ET 135	0.0	100.0	69.2	61.5	84.6	58.3
ET 201	0.0	0.0	0.0	85.0	73.9	81.0
ET 202	0.0	0.0	0.0	0.0	0.0	60.0
ET 289	0.0	88.9	90.0	80.0	87.5	0.0
<b>Success Rate</b>	50.0	65.4	67.9	68.6	68.4	66.4



Passing Grades	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
A	6	23	32	41	41	38
B	3	5	13	8	14	28
C	8	6	10	7	9	12
CR	1		2	3		
P					3	1
<b>Total</b>	18	34	57	59	67	79

Other Grades	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
D	3	8	6	4	3	4
DR	26	26	30	43	58	71
F	4	7	11	16	12	20
NC	2		2	1		
NP					1	3
W	9	3	8	6	15	13
<b>Total</b>	44	44	57	70	89	111



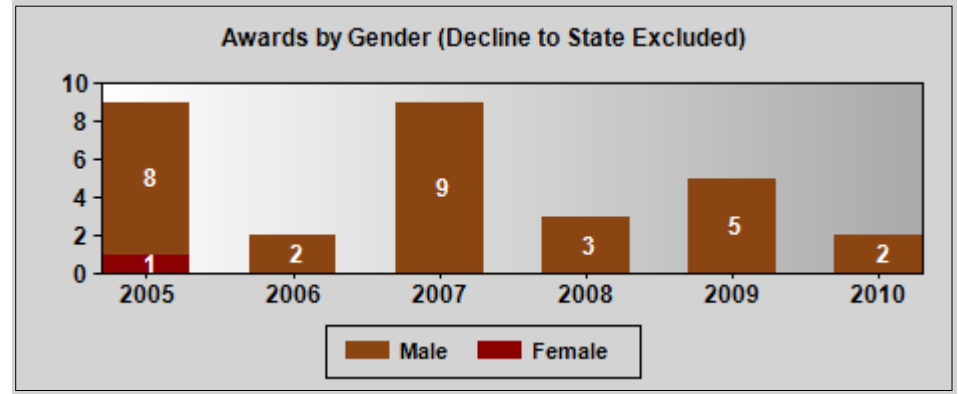
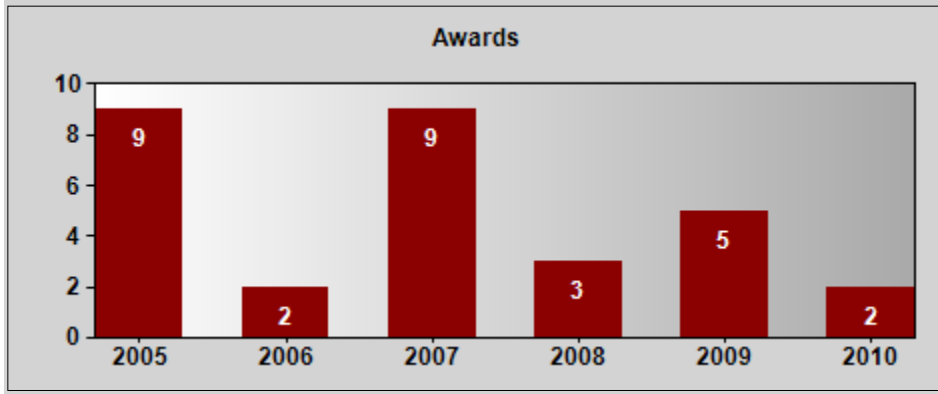
Age Group	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
1. Below 18		3	5	1	3	10
2. 18-21	20	16	32	27	41	41
3. 22-29	10	12	22	32	21	28
4. 30-39	2	5	12	7	10	12
5. 40-49	4	6	6	5	8	10
6. 50-59	3	1	4	3	5	6
7. Over 59	2	1	1	4	2	
<b>Total Students</b>	41	44	82	79	90	107

### Student Counts by Ethnicity

Ethnicity	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
White, Non-Hispanic	25	23	45	40	47	56
Decline to state	9	10	17	13	9	8
Mexican, Chicano, Mexican-American	4	7	3	7	5	11
Mixed Ethnicity	1		1	3	11	12
Filipino			2	3	1	3
South American		1	4		2	
Other Asian				1	2	4
Chinese		1			2	3
Vietnamese		1		1	2	2
Japanese			1	1	3	1
Other Hispanic	1		3	1		
Indian Sub-Continent		1	3			1
American Indian, Alaskan Native				2	1	2
Black, African-American				2	2	1
Other Non-White				2	2	1
Korean			1	1		1
Middle Eastern	1		1			
Central American			1			1
Other Pacific Islander				2		
Pacific Islander; Hawaiian					1	
<b>Total Students</b>	41	44	82	79	90	107

### Student Counts by Educational Goal

Educational Goal	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Obtain a Bachelor's degree after Assoc.	11	11	17	22	24	29
Undecided on goal	1	4	9	12	14	20
Advance in current job/career	5	8	10	8	7	12
Prepare for a new career	4	1	5	8	6	8
Obtain a Bachelor's degree w/o Assoc.	4	3	6	1	6	8
Personal Development	4	3	6	2	7	5
Obtain a voc certificate and transfer	7	2	9	2	4	1
Obtain a voc certificate w/o transfer	1	3	4	5	4	4
Improve basic skills	1	4	8		5	1
Discover/develop career interests	1	2	4	4	2	2
4 yr col std taking crs to meet 4 yr requirements				1	2	12
Obtain two-year voc. degree w/o transfer	2	1	3	7		
Obtain a non-voc degree w/o transfer		1	1	4	5	2
Complete credits for HS diploma or GED				2	3	1
Maintain license				1	1	2
		1				
<b>Total Students</b>	41	44	82	79	90	107



Awards by Age Group	2005	2006	2007	2008	2009	2010
2.18-21						2
3.22-29	1	1	4	3	5	
4.30-39		1	2			
5.40-49	7		3			
6.50-59	1					
<b>Total Awards</b>	<b>9</b>	<b>2</b>	<b>9</b>	<b>3</b>	<b>5</b>	<b>2</b>

Awards by Major	2005	2006	2007	2008	2009	2010
ANALOG AND DIGITAL CIRCUIT ELECTRONIC TECHNOLOGY	5		5		1	1
DIGITAL ELECTRONIC TECHNOLOGY			1	1	2	
GENERAL ELECTRONIC TECHNOLOGY	4	2	3	2	2	1
<b>Total Awards</b>	<b>9</b>	<b>2</b>	<b>9</b>	<b>3</b>	<b>5</b>	<b>2</b>

Award Type	2005	2006	2007	2008	2009	2010
Associate in Arts	1	1				1
Associate in Science	1		3	1		
Certificate of Achievement	7	1	6	2	5	1
<b>Total Awards</b>	<b>9</b>	<b>2</b>	<b>9</b>	<b>3</b>	<b>5</b>	<b>2</b>

**Staffing Counts (Instructors Assigned to D-G Tickets Only Have Been Excluded)**

<b>Employee Type</b>		<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>
PART-TIME	Josifek, Knute		1	1	1	1	1
	Silverman, Hal	1					
	Toosi, Farah				1	1	
	<b>Total</b>	1	1	1	2	2	1
<b>Total</b>		1	1	1	2	2	1