Saddleback College
Program Review for
Electronic Technology

Submitted 11/30/07

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Program Review Team Members and Approvals

Program Review Team Chair:

Eugene J. Evancoe

Program Review Team Members:

Knute Josifek

Thomas Smith

Approvals:

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Division Dean

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Program Review Chair

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Academic Senate President

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Vice President of Instruction

Program Review Checklist

Date Completed	Action
9/20/07	Contact Program Review Chair for orientation
9/20/07	Form Program Review Team
10/15/07	Gather documents (Org Chart/Staffing Profile/SLO Assessment Forms/Data Sets)
10/20/07	Solicit input from faculty and students
11/01/07	Determine if additional research is needed
11/1/07	Contact College Research Analyst if necessary
11/15/07	Write Program Review report
11/30/07	Submit report to Dean and Program Review Chair for approval
	Report submitted to Academic Senate for approval
	Report submitted to Office of Instruction for approval
	Report submitted to College President and the Office of Institutional Effectiveness
	Report posted to the IE web site
	Open, formal presentation to the Program Review Committee and other interested parties

Section I: Program Overview

A. The Mission of the Program and its Link to the College's Mission and Goals

The mission of the Electronic Technology program is to provide high quality technical instruction, career preparation, and career upgrading skills in Electronic Technology which is 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 both the mission of Saddleback College and its goals. In the context of electronics, the program mission, which was described specifically above, also fulfills the general mission of the College by providing access to learning opportunities for student success, fostering intellectual growth, individual expression, and character development, and supporting a dynamic and diverse environment of innovation and collegiality. The Electronic Technology courses and program, with varied learning experiences in the classroom and laboratories, directly support the College mission.

Two goals of Saddleback College are met in the context of the Electronic Technology courses and program. Supporting the second College goal, the Electronic Technology program also provides high-quality courses and certificates to enable students to pursue their educational objectives and career goals in the area of electronics and related fields. Several of the electronics courses articulate with universities for students who continue their studies in the field at higher education institutions. 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. Electronics courses can accompany the required general education course 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.

Supporting the seventh College goal, the Electronic Technology 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 also interested in the field for general knowledge or as a hobby, and our courses provide life-long learning opportunities in electronics.

B. Historical Background and Unique Characteristics of the Program

The Electronic Technology program has been at Saddleback College for over 20 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 four 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 in 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

This is the first program review of Electronic Technology since at least 1991. No information is available from any previous program reviews.

D. Current Strengths, Opportunities, and Challenges

The current strengths of the program are as follows:

1) High quality 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 variety of electronics courses. Only a few specialized instruments would be needed for new 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 and 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. For the past few years lower enrollments in the advanced classes have resulted in less frequent offerings and/or contracted classes, extending completion times for students and/or requiring them to take courses out of sequence to stay active in the program. Some advanced classes have been offered only every 3-4 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 out of date or 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 (¼) 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 report.

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 (in Fall 2007) of full-time to part-time faculty is about 2.5 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), to bring the technician to a minimum of 16 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. Presently the scheduling of intermediate and advanced courses is based mostly on expected enrollments rather than normal course sequencing, which results in students often having to take courses out of order to make progress toward a certificate or stay active in the 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. We are in only the second year of using SLO's for this program, but so far the results have provided very useful data to see our successes and

strengths and also areas that need more attention. With each year we will gather more information about different aspects of courses so that we can continually find what to retain, revise, delete, and add at the course and program levels.

In order to improve the instruction in Electronic Technology courses, we have utilized various technology improvements, such as computer aided analysis and simulations, and online learning resources which accompany most of our textbooks. These resources 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 36-50. In terms of educational goal, the largest percentage of students desire courses for acquiring or updating job skills. The next highest educational goal is transfer, with or without an AA/AS degree. Obtaining a technical 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 have participated in the Early Alert program in the past, but our experience is that the notification is too late for recovery. Since the electronics classes are serial in nature (each week builds on the previous week), by the time the Early Alert is received by the student, it is too late in the semester for the assistance to have any meaningful effect. 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 and retention rates have stay approximately constant for the past five years. There have been some ups and downs but no clear or sustained trends.

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. 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 is remains functional, is adequate for the program, but there is the constant challenge and need of maintenance and repair. Often particular instruments are discontinued by their manufacturer (in favor of newer models not required by the program). Consequently, it becomes very difficult or impossible to get the 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.

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. Our program and classes are also announced at local libraries.

Section III: Needs Assessment

A. Human Resource Needs

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 as needed for new courses. 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.

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. We need to establish a replacement cycle for all existing equipment according to the support timelines of the equipment manufacturers (equipment must be replaced when it is not longer supported). This timeline will vary with each instrument. 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 will be required, such as microprocessor trainers, fiber optics equipment, and industrial electronics equipment which are being considered.

E. Facilities Needs

We 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 needs 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. 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 at least 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 form 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)

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
	2002	2003	2004	2005	2006	
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	0.2	0.3	0.4	0.4	0.2	0

C. SLO Assessment Forms

Electronic Technology
05/07

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**
Electronic Technology program: The program purpose pertains to items 2 and 7 of the general Saddleback College goals: 2: Provide a comprehensive, broad range of high-quality courses and programs to enable students to pursue their educational objectives and career goals.	1. Students who complete ET classes will be satisfied with information and concepts they gained from each class in the program. 2. Students shall be able to calculate the performance of basic DC/AC resistive circuits.	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. 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.	1. At the end of the 2006-07 school year 100% of respondents indicated satisfaction when assessed by the distribution of a generic survey. 2. During the 2006-07 school year 92.3 % of the students tested successfully calculated the performance of a basic resistive circuit.	1. Objective was met above the expected outcome; we will continue to monitor student satisfaction and academic needs within the classes of the program. 2. Objective was met above the expected outcome; we will continue to monitor the student outcomes and look for ways to improve.

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**
7: Provide opportunities in continuing education and community services, including courses for skills upgrading and retraining for professionals and life-long learning for older adults. Specifically, the ET program provides quality technical instruction, career preparation, and career upgrading skills in Electronic Technology.	3. Students shall be able to calculate the frequency response characteristics of passive RLC filters.	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.	3. During the 2006-07 school year 92.3 % of the students tested successfully analyzed an RLC passive filter.	3. Objective was met above the expected outcome; we will continue to monitor the student outcomes and look for ways to improve.

D. Data Sets

The following pages include:

1. **Course Section Count**
2. **C1 & End of Term Headcount**
3. **Overview of Courses, Grades, Success/Retention**
4. **Course Grades, Success/Retention**
5. **Electronic Technology Students' Duplicated Headcount**
   a. **Gender**
   b. **Zip Code**
   c. **Age Groups**
   d. **Ethnicity**
   e. **Educational Goal**
6. **Awarded Degrees and Certificates**

Data Source: SOCCCD Management Information System (MIS) Data Warehouse
October- November 2007
Prepared by Shouka Torabi, Research and Planning Specialist, Saddleback College

Section Count

Electronic Technology Courses
Course and Section Count by Term and Year

	Fall					Spring					
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006	2007
	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count
ET 101	1	0	0	0	0	2	1	0	1	1	1
ET 110	0	0	0	0	0	0	0	0	1	0	1
ET 114	0	0	0	0	0	1	0	1	0	1	0
ET 118	1	0	0	1	0	0	0	0	0	1	0
ET 133	1	2	2	2	2	0	1	1	1	1	1
ET 135	0	1	1	0	1	1	0	0	0	0	0
Total	3	3	3	3	3	4	2	2	3	4	3

Census Headcount

Electronic Technology Courses
C1 Headcount by Course/Term/Year

	Fall					Spring					
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006	2007
	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount
ET 101	9	.	.	.	.	20	3	.	8	10	9
ET 110	.	.	.	.	.	.	.	.	16	.	8
ET 114	.	.	.	.	.	11	.	15	.	14	.
ET 118	14	.	.	9	.	.	.	.	.	0	.
ET 133	9	24	32	18	12	.	19	16	15	13	11
ET 135	.	9	8	.	6	18	.	.	.	.	.
Total	32	33	40	27	18	49	22	31	39	37	28

End of Term Count

Electronic Technology Courses
End of Term Enrollment by Course/Term/Year

	Fall					Spring					
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006	2007
	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment
ET 101	9	0	0	0	0	20	3	0	8	10	9
ET 110	0	0	0	0	0	0	0	0	16	0	8
ET 114	0	0	0	0	0	11	0	15	0	14	0
ET 118	14	0	0	10	0	0	0	0	0	1	0
ET 133	9	24	32	18	12	0	19	16	15	13	11
ET 135	0	9	8	0	6	18	0	0	0	0	0
Total	32	33	40	28	18	49	22	31	39	38	28

Summary of All Courses by Grade/Success/Retention

Electronic Technology Courses
Summary of All Courses by Grade/Success/Retention

		Grades											success	retention
		A	B	C	CR	D	F	I	NC	W	XX	Total		
		Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Percent	Percent
2002	Spring	16	10	6	0	1	4	0	0	7	5	49	65.3%	85.7%
	Fall	8	4	6	0	1	3	4	0	3	3	32	56.3%	90.6%
2003	Spring	6	0	3	0	2	2	2	0	2	5	22	40.9%	90.9%
	Fall	8	6	4	0	0	5	0	0	6	4	33	54.5%	81.8%
2004	Spring	7	7	4	0	0	1	0	0	6	6	31	58.1%	80.6%
	Fall	8	5	7	0	0	1	0	0	16	3	40	50.0%	60.0%
2005	Spring	14	8	2	1	3	2	0	2	2	5	39	64.1%	94.9%
	Fall	10	1	7	0	1	2	0	0	4	3	28	64.3%	85.7%
2006	Spring	5	4	7	2	2	7	1	2	6	2	38	47.4%	84.2%
	Fall	5	3	4	0	1	2	0	0	1	2	18	66.7%	94.4%
2007	Spring	10	2	2	0	7	4	0	0	2	1	28	50.0%	92.9%

Grade XX = None of the above/unknown.

Success Rate: Percent of students successful in courses out of total enrolled in courses (RP Group, 1996).
The success rate is calculated by dividing the numerator (number of students duplicated with A, B, C, CR) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX)

Retention Rate: Percent of students retained in courses out of total students enrolled in courses (RP Group, 1996).
The retention rate is calculated by dividing the numerator (number of students duplicated with A, B, C, D, F, CR, NC, I, XX) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX).

Summary of ET 101, ET 110, & ET 114 by Grade/Success/Retention

Electronic Technology Courses
Courses by Grade/Success/Retention

			Grades									success	retention
			A	B	C	CR	D	F	I	W	XX		
			Count	Count	Count	Count	Count	Count	Count	Count	Count	Percent	Percent
ET 101	2002	Spring	7	3	1	0	0	2	0	4	3	55.00	80.00
		Fall	0	1	4	0	0	1	2	1	0	55.56	88.89
	2003	Spring	0	0	0	0	0	1	0	1	1	.00	66.67
	2005	Spring	3	2	0	0	1	0	0	0	2	62.50	100.00
	2006	Spring	0	1	2	1	1	2	0	1	2	40.00	90.00
	2007	Spring	2	1	0	0	3	2	0	1	0	33.33	88.89
ET 110	2005	Spring	7	4	2	1	0	1	0	0	1	87.50	100.00
	2007	Spring	6	0	2	0	0	0	0	0	0	100.00	100.00
ET 114	2002	Spring	6	3	1	0	0	0	0	1	0	90.91	90.91
	2004	Spring	5	4	1	0	0	0	0	2	3	66.67	86.67
	2006	Spring	3	1	4	1	0	3	1	1	0	64.29	92.86

CAPTION= Grade XX = None of the above/unknown.

Success Rate: Percent of students successful in courses out of total enrolled in courses (RP Group, 1996).
The success rate is calculated by dividing the numerator (number of students duplicated with A, B, C, CR) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX)

Retention Rate: Percent of students retained in courses out of total students enrolled in courses (RP Group, 1996).
The retention rate is calculated by dividing the numerator (number of students duplicated with A, B, C, D, F, CR, NC, I, XX) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX).

Summary of ET 118, ET 133, & ET 135 by Grade/Success/Retention

Electronic Technology Courses
Courses by Grade/Success/Retention

			Grades									success	retention
			A	B	C	D	F	I	NC	W	XX		
			Count	Count	Count	Count	Count	Count	Count	Count	Count	Percent	Percent
ET 118	2002	Fall	6	3	1	1	0	0	0	1	2	71.43	92.86
	2005	Fall	6	1	1	0	2	0	0	0	0	80.00	100.00
	2006	Spring	0	0	1	0	0	0	0	0	0	100.00	100.00
ET 133	2002	Fall	2	0	1	0	2	2	0	1	1	33.33	88.89
	2003	Spring	6	0	3	2	1	2	0	1	4	47.37	94.74
		Fall	4	6	4	0	2	0	0	4	4	58.33	83.33
	2004	Spring	2	3	3	0	1	0	0	4	3	50.00	75.00
		Fall	3	5	6	0	1	0	0	15	2	43.75	53.13
	2005	Spring	4	2	0	2	1	0	2	2	2	40.00	86.67
		Fall	4	0	6	1	0	0	0	4	3	55.56	77.78
	2006	Spring	2	2	0	1	2	0	2	4	0	30.77	69.23
		Fall	3	1	3	1	2	0	0	1	1	58.33	91.67
	2007	Spring	2	1	0	4	2	0	0	1	1	27.27	90.91
ET 135	2002	Spring	3	4	4	1	2	0	0	2	2	61.11	88.89
	2003	Fall	4	0	0	0	3	0	0	2	0	44.44	77.78
	2004	Fall	5	0	1	0	0	0	0	1	1	75.00	87.50
	2006	Fall	2	2	1	0	0	0	0	0	1	83.33	100.00

CAPTION= Grade XX = None of the above/unknown.

Success Rate: Percent of students successful in courses out of total enrolled in courses (RP Group, 1996).
The success rate is calculated by dividing the numerator (number of students duplicated with A, B, C, CR) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX)

Retention Rate: Percent of students retained in courses out of total students enrolled in courses (RP Group, 1996).
The retention rate is calculated by dividing the numerator (number of students duplicated with A, B, C, D, F, CR, NC, I, XX) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX).

Gender by Year/Term

Electronic Technology Courses
Gender by Year/Term
Duplicated Headcount

		F		M		X		Total	
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
2002	Spring	3	6.1%	46	93.9%	0	.0%	49	100.0%
	Fall	3	9.4%	29	90.6%	0	.0%	32	100.0%
2003	Spring	1	4.5%	21	95.5%	0	.0%	22	100.0%
	Fall	0	.0%	33	100.0%	0	.0%	33	100.0%
2004	Spring	3	9.7%	28	90.3%	0	.0%	31	100.0%
	Fall	5	12.5%	35	87.5%	0	.0%	40	100.0%
2005	Spring	3	7.7%	35	89.7%	1	2.6%	39	100.0%
	Fall	3	10.7%	25	89.3%	0	.0%	28	100.0%
2006	Spring	1	2.6%	37	97.4%	0	.0%	38	100.0%
	Fall	1	5.6%	17	94.4%	0	.0%	18	100.0%
2007	Spring	0	.0%	28	100.0%	0	.0%	28	100.0%

Courses by Zip Code

Electronic Technology Courses by Zip Code
Duplicated Headcount

		Saddleback		Irvine		Out of District		Total	
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
2002	Spring	45	91.8%	2	4.1%	2	4.1%	49	100.0%
	Fall	26	81.3%	3	9.4%	3	9.4%	32	100.0%
2003	Spring	20	90.9%	1	4.5%	1	4.5%	22	100.0%
	Fall	32	97.0%	0	.0%	1	3.0%	33	100.0%
2004	Spring	29	93.5%	1	3.2%	1	3.2%	31	100.0%
	Fall	37	92.5%	0	.0%	3	7.5%	40	100.0%
2005	Spring	35	89.7%	0	.0%	4	10.3%	39	100.0%
	Fall	24	85.7%	0	.0%	4	14.3%	28	100.0%
2006	Spring	35	92.1%	0	.0%	3	7.9%	38	100.0%
	Fall	15	83.3%	0	.0%	3	16.7%	18	100.0%
2007	Spring	21	75.0%	1	3.6%	6	21.4%	28	100.0%

Age Group Distribution by Year/Term

Electronic Technology Courses
Age Group Distribution by Year/Term
Duplicated Headcount

		Age Groups															
		Below 17		18-21		22-25		26-35		36-50		51-65		Over 65		Total	
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
2002	Spring	0	.0%	15	30.6%	8	16.3%	12	24.5%	11	22.4%	2	4.1%	1	2.0%	49	100.0%
	Fall	1	3.1%	7	21.9%	7	21.9%	4	12.5%	13	40.6%	0	.0%	0	.0%	32	100.0%
2003	Spring	1	4.5%	7	31.8%	3	13.6%	5	22.7%	6	27.3%	0	.0%	0	.0%	22	100.0%
	Fall	2	6.1%	10	30.3%	5	15.2%	3	9.1%	12	36.4%	1	3.0%	0	.0%	33	100.0%
2004	Spring	0	.0%	9	29.0%	4	12.9%	3	9.7%	14	45.2%	1	3.2%	0	.0%	31	100.0%
	Fall	1	2.5%	17	42.5%	4	10.0%	3	7.5%	10	25.0%	4	10.0%	1	2.5%	40	100.0%
2005	Spring	0	.0%	15	38.5%	8	20.5%	3	7.7%	9	23.1%	4	10.3%	0	.0%	39	100.0%
	Fall	0	.0%	8	28.6%	4	14.3%	2	7.1%	9	32.1%	4	14.3%	1	3.6%	28	100.0%
2006	Spring	0	.0%	16	42.1%	8	21.1%	4	10.5%	6	15.8%	3	7.9%	1	2.6%	38	100.0%
	Fall	0	.0%	5	27.8%	4	22.2%	3	16.7%	5	27.8%	1	5.6%	0	.0%	18	100.0%
2007	Spring	0	.0%	13	46.4%	7	25.0%	4	14.3%	4	14.3%	0	.0%	0	.0%	28	100.0%

Ethnicity by Year/Term

Electronic Technology Courses
Ethnicity by Year/Term
Duplicated Headcount

		Ethnic Groups															
		Asian		African American		Hispanic		American Indian/Alaskan Native		Other		Pacific Islander		White		Unknown		Total	
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
2002	Spring	7	14.3%	0	.0%	13	26.5%	0	.0%	0	.0%	0	.0%	26	53.1%	3	6.1%	49	100.0%
	Fall	8	25.0%	0	.0%	4	12.5%	0	.0%	0	.0%	0	.0%	20	62.5%	0	.0%	32	100.0%
2003	Spring	1	4.5%	0	.0%	5	22.7%	0	.0%	1	4.5%	1	4.5%	11	50.0%	3	13.6%	22	100.0%
	Fall	3	9.1%	0	.0%	4	12.1%	1	3.0%	1	3.0%	0	.0%	20	60.6%	4	12.1%	33	100.0%
2004	Spring	0	.0%	0	.0%	9	29.0%	0	.0%	0	.0%	0	.0%	15	48.4%	7	22.6%	31	100.0%
	Fall	3	7.5%	1	2.5%	9	22.5%	0	.0%	0	.0%	0	.0%	21	52.5%	6	15.0%	40	100.0%
2005	Spring	4	10.3%	0	.0%	7	17.9%	0	.0%	0	.0%	0	.0%	25	64.1%	3	7.7%	39	100.0%
	Fall	0	.0%	0	.0%	9	32.1%	0	.0%	0	.0%	0	.0%	17	60.7%	2	7.1%	28	100.0%
2006	Spring	0	.0%	0	.0%	6	15.8%	0	.0%	0	.0%	0	.0%	30	78.9%	2	5.3%	38	100.0%
	Fall	3	16.7%	0	.0%	3	16.7%	0	.0%	0	.0%	0	.0%	7	38.9%	5	27.8%	18	100.0%
2007	Spring	3	10.7%	0	.0%	6	21.4%	0	.0%	0	.0%	0	.0%	17	60.7%	2	7.1%	28	100.0%

Educational Goals by Year/Term

Electronic Technology Courses
Educational Goals by Year/Term
Duplicated Headcount

	2002				2003				2004				2005				2006				2007	
	Spring		Fall		Spring		Fall		Spring		Fall		Spring		Fall		Spring		Fall		Spring	
	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %
AA/AS and transfer	15	30.6%	5	15.6%	3	13.6%	3	9.1%	3	9.7%	8	20.0%	8	20.5%	5	17.9%	9	23.7%	6	33.3%	8	28.6%
Transfer w/o AA/AS	2	4.1%	0	.0%	0	.0%	4	12.1%	2	6.5%	0	.0%	1	2.6%	0	.0%	2	5.3%	0	.0%	2	7.1%
AA/AS w/o transfer	1	2.0%	1	3.1%	0	.0%	0	.0%	0	.0%	1	2.5%	0	.0%	0	.0%	1	2.6%	0	.0%	0	.0%
2-yr Voc. w/o transfer	1	2.0%	0	.0%	3	13.6%	1	3.0%	1	3.2%	0	.0%	1	2.6%	2	7.1%	0	.0%	1	5.6%	0	.0%
Voc. certif. w/o transf	5	10.2%	5	15.6%	4	18.2%	0	.0%	3	9.7%	6	15.0%	4	10.3%	6	21.4%	4	10.5%	5	27.8%	2	7.1%
Discover interests	3	6.1%	5	15.6%	1	4.5%	2	6.1%	2	6.5%	1	2.5%	2	5.1%	0	.0%	2	5.3%	0	.0%	0	.0%
Acquire job skills	4	8.2%	3	9.4%	3	13.6%	6	18.2%	2	6.5%	8	20.0%	1	2.6%	3	10.7%	10	26.3%	1	5.6%	3	10.7%
Update job skills	6	12.2%	5	15.6%	2	9.1%	5	15.2%	11	35.5%	11	27.5%	11	28.2%	6	21.4%	3	7.9%	1	5.6%	4	14.3%
Ed. development	6	12.2%	5	15.6%	3	13.6%	4	12.1%	3	9.7%	2	5.0%	5	12.8%	4	14.3%	2	5.3%	1	5.6%	2	7.1%
Basic Skills	1	2.0%	1	3.1%	1	4.5%	2	6.1%	0	.0%	0	.0%	0	.0%	1	3.6%	1	2.6%	2	11.1%	1	3.6%
HS or GED	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	1	3.6%
Undecided	5	10.2%	2	6.3%	2	9.1%	6	18.2%	4	12.9%	3	7.5%	6	15.4%	1	3.6%	4	10.5%	1	5.6%	5	17.9%
Total	49	100.0%	32	100.0%	22	100.0%	33	100.0%	31	100.0%	40	100.0%	39	100.0%	28	100.0%	38	100.0%	18	100.0%	28	100.0%

Awarded Degrees and Certificates for Electronic Technology

Table 1 *Awarded degrees for Electronic Technology by award year*

			Degree Type	
			AA	AS
			Count	Count
ANALOG AND DIGITAL CIRCUIT ELECTRONIC TECHNOLOGY	awardYear	20052006	0	1
GENERAL ELECTRONIC TECHNOLOGY	awardYear	20052006	1	0

Table 2 *Awarded certificates for Electronic Technology by award year*

			Certificate
			Count
ANALOG AND DIGITAL CIRCUIT ELECTRONIC TECHNOLOGY	awardYear	20052006	3
		20072008	1
DIGITAL ELECTRONIC TECHNOLOGY	awardYear	20072008	1
GENERAL ELECTRONIC TECHNOLOGY	awardYear	20052006	3
		20072008	1