Program Evaluation
Fall 2008 – Spring 2011

Programs Evaluated:

This program evaluation covers the following programs;

A. Associate of Applied Science in Telecommunication Technology
B. Associate of Applied Science in Electronic Technology

A. Program Goals:

Associate of Applied Science Degree in Telecommunication Technology

Its primary purpose is to provide students with marketable entry-level skills in the telecommunication industry or any related field/career. It is designed to qualify students to take external licensure, vendor-based, or skill standards examinations in the field. If standardized external exams are not available in the field of study, the program prepares students at skill levels expected of employees in an occupation found in the local economy.

Program Learning Outcomes (PLO)

On the program completion, the successful graduate will be able to:

1. Practice safety and occupational health procedures in the workplace.
2. Use electronics tools and test equipment competently.
3. Interpret schematic diagrams and waveforms.
4. Build electronics projects to a given specification.
5. Practice a career in the Telecom Industry.
6. Troubleshoot radio communication, microwave, fiber optic and telephone systems.

Associate of Applied Science Degree in Electronic Technology

Its primary purpose is to provide students with marketable entry-level skills in the electronic industry or any related field/career. It is designed to qualify students to take external licensure, vendor-based, or skill standards examinations in the field. If standardized external exams are not available in the field of study, the program prepares students at skill levels expected of employees in an occupation found in the local economy.

Program Learning Outcomes (PLO)

On the program completion, the successful graduate will be able to:

1. Practice safety and occupational health procedures in the workplace.
2. Use electronics tools and test equipment competently.
3. Interpret schematic diagrams and waveforms.
4. Build electronics projects to a given specification.
5. Perform troubleshooting techniques to maintain, diagnose, and repair personal computer systems.
6. Perform troubleshooting techniques to maintain, diagnose, and repair office equipment, and video & audio equipment and systems.

B. Program History

The program was created by recommendations of Pohnpei Campus Advisory Council to offer a certificate of achievement (COA) in electronics to train local students to acquire skills in maintaining and repairing of electronic equipment and devices which was a needed skill in the community and the local workforce.

Milestones:

- 1999 - The first course was offered with five students.
- 2000 - One full time instructor was recruited to assist in designing curriculum and offer courses
- 2001- Additional instructor was recruited and enrollment increased to 12 students
- 2003 - Substantive change report to WASC was approved to extend COA in Electronics to include Advanced Certificate and Associate of Applied Science degree in Electronic Technology and Telecommunication Technology
    - Commenced the use of computer assisted instruction (NIDA) to improve course delivery
    - Recruited 12 Technicians from FSMTC to enroll in the AAS Telecommunication Technology program
- 2004 – First AAS degree graduates
    - Fall 2004 – 5 students in Telecommunications Technology; 6 students in Electronic Technology
- 2005 – Modified Fiber Optic course to be in compliance with the Electronic Technicians Association (ETA) standards
- 2006 – Modified courses in the Electronic Technology program to improve coursework with more hands-on training on actual equipment and devices
    - A course on personal computer repair was created using the standards of Cisco Networking Academy
    - A course on video systems and product servicing was created to improve students' skills in maintaining and repairing video systems, including TV and monitor, VCR, DVD, and other related devices
    - A course on business machines servicing was created to improve students' skills in maintaining and repairing office equipment such as printers, copy machines, cash registers, and other related equipment
- 2008 – Currently working on course modifications to improve quality and course delivery based on recommendations from program/course assessment. Course modifications include the introduction of wireless systems, radio communication equipment servicing, and audio systems servicing.

C. Program Description

Associate of Applied Science Degree in Telecommunication Technology

Maintenance, troubleshooting, repairing and modifying Telecommunication equipment and systems is the base for a career as a technician in this high-tech field. Telecommunications is one of the fastest growing industries in the world. The computer and information technologies are driving the need for more telecommunications services. The academic course work, technical skills training and practical experience available in this program prepare the student for positions within the industry. Training on and with the state of the art computer aided instruction system at COM-FSM will provide the technical edge needed in today's telecommunications industry. Embedded within the program are three separate exit points, Certificate of Achievement in Electronics Engineering Technology, Advance Certificate

in Telecommunications Technology and the Associate of Applied Science in Telecommunication Technology.

Associate of Applied Science Degree in Electronic Technology

Maintenance, troubleshooting, repairing and modifying electronic equipment and systems is the base for a career as a technician in this high-tech field. The academic course work, technical skills training and practical experience available in this program prepares students for employment as technicians in this rapidly growing industry. Training on and with the state of the art computer aided instruction system at COM-FSM will provided the technical edge needed in today's electronic industry. Embedded within the program are three separate exit points, Certificate of Achievement in Electronic Engineering Technology, Advance Certificate in Electronics Technology and on completion the Associate of Applied Science in Electronics Technology.

Figure 1, show the entry and exit points for both electronics and telecommunication program.

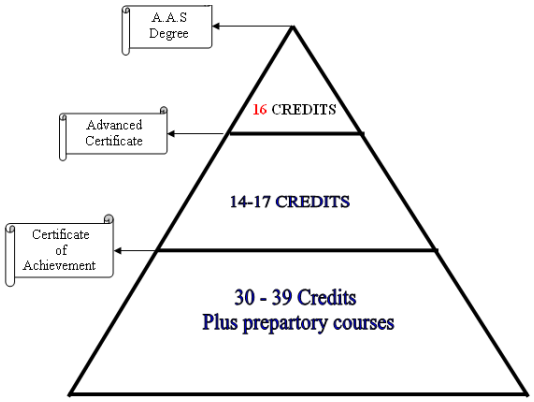

Figure 1. Electronics and Telecommunication program entry and exit points

Source: COM-FSM General catalog

D. Program Admission Requirements

Both programs are structured to begin their course offerings at the certificate level (Certificate of Achievement in Electronic Engineering Technology). Therefore, the admission requirements for both programs follow the same the admission requirements for all certificates of achievement programs as offered by the College in which students must complete high school education or equivalence to enter in either program.

Students must be admitted into degree programs based on the results of the College of Micronesia-FSM Entrance Exam (COMET) to further their studies into the Advanced Certificate and Associate of Applied Science degree. Students who are admitted into the programs as certificate bound status must change their status to degree bound by retaking and passing the COMET into the degree programs.

E. Program Certificate/Degree Requirements

Certificate of Achievement in Electronic Engineering Technology

General Education Core Requirements……..15 credits

Mathematics (8 credits)
MS 104 Technical Math I (4)
MS 106 Technical Math II (4)

Computer Applications (3 credits)
CA 100 Computer Literacy (3)

Natural Science (4 credits)
Any Science with lab: [preferably SC130 Physical Science]

Technical Requirements……...…….22 credits

VEE 103 Electronic Fundamentals I (3)
VSP 121 Industrial Safety (1.5)
VEE 100 Soldering and Mechanical Termination Techniques (1.5)
VEM 110 Workshop Fabrications (3)
VEE 104 Electronic Fundamentals II (4)
VEE 110 Discrete Devices I (3)
VEE 125 Electronic Circuits (3)
VEE 135 Digital Electronics I (3)

Total Requirements…….…….. . 37 credits

Advanced Certificate in Telecommunication Technology

General Education Requirements ……... 3 credits

English (3 credits)
EN 123 Technical Communications (3)

Technical Requirements …….……...……. 11 credits

VEE 230 Radio Communications (3)
VEE 235 Digital Electronics II (3)
VEE 240 Signal Processing (3)

Technical Elective (2)
(Student may choose any technical course subject to approval by division)

VEE 250 Co-operative Education (2)
VTE 281 Cellular Phone Repairs (3)

Sub Total Requirements ……..……..…… **14 credits**

Certificate of Achievement …….….. **37 credits**

Total Requirements …… 51 credits

Associate of Applied Science in Telecommunication Technology

General Education Requirements ……..… 4 credits

Humanities (3)
Any course in art, music, history, language, philosophy (3)

Physical Education (1)
Any Physical Education course

Major Technical Requirements ……..…… 12 credits
VTE 260 Microwaves (3)
VTE 261 Fiber Optics Installations (3)
VTE 270 Telecommunication Systems (3)
VTE 280 Telephone Systems (3)

Sub Total Requirements …….. **16 credits**

Advanced Certificate ……...…… **51 credits**

Graduation Requirements ……...……..…….. 67 credits

Advanced Certificate in Electronic Technology

General Education Requirements …… 3 credits
English (3 credits)
EN 123 Technical Communications (3)

Technical Requirements …… 12 credits
VEE 223 PC Hardware & Software (4)
VEE 222 Discrete Devices II (3)
VEE 235 Digital Electronic II (3)

Technical Elective (2)
(Student may choose any technical course subject to approval by division)
VEE 250 Cooperative Education (2)
VTE 261 Fiber Optics Installations (3)

Sub Total Requirements …… **15 credits**

Certificate of Achievement …… **37 credits**

Total Requirements …… 52 credits

Associate of Applied Science in Electronic Technology

General Education Requirements …….…… 4 credits
Humanities (3)
Any course in art, music, history, language, philosophy (3)

Physical Education (1)
Any Physical Education course

Technical Major Requirements ……..…… 11 credits
VEE 224 Video Systems & Product Servicing (4)
VEE 225 Business Machines & Servicing (4)
VEE 240 Signal Processing (3)

Sub Total Requirements …….. **15 credits**

Advanced Certificate in Electronic Technology ……..…….. **52 credits**

Graduation Requirements ……..…….. 67 credits

Source: COM-FSM General Catalog

F. Program Courses and Enrollment

Electronics program and Telecommunication program course requirements are depicted in table 1 and table 2 respectively.

Technical Requirements	**General Education Requirements**
VSP121 Industrial Safety	EN123 Technical Communication
VEM110 Workshop Fabrication	MS104 Technical Math I
VEE100 Soldering & Termination Tech.	MS106 Technical Math II
VEE103 Electronic Fundamentals I	CA100 Computer Literacy
VEE104 Electronic Fundamentals II	Humanities
VEE110 Discrete Devices I	Science with lab
VEE135 Digital Electronics I	Physical Education
VEE222 Discrete Devices II	
VEE223 PC Hardware & Software	
VEE235 Digital Electronics II	
VEE224 Video Systems & Servicing	
VEE225 Business Machine Servicing	
VEE240 Signal Processing	
Elective	

Table 1. Electronics technology program courses

Source: COM-FSM General Catalog

Telecommunication Technology

Technical Requirements	**General Education Requirements**
VSP121 Industrial Safety	EN123 Technical Communication
VEM110 Workshop Fabrication	MS104 Technical Math I
VEE100 Soldering & Termination Tech.	MS106 Technical Math II
VEE103 Electronic Fundamentals I	CA100 Computer Literacy
VEE104 Electronic Fundamentals II	Humanities
VEE110 Discrete Devices I	Science with lab
VEE135 Digital Electronics I	Physical Education
VEE230 Radio Communications	
VEE235 Digital Electronics II	
VEE240 Signal Processing	
VTE261 Fiber Optics Installation	
VTE265 Microwave	
VTE270 Telecommunication Systems	
VTE280 Telephone Systems	
Elective	

Table 2. Telecommunication program courses

Source: COM-FSM General Catalog

Table 3, show the courses offered for each semester from fall 2008 to spring 2011. In the 100s' courses, there are instances the classes are divided in two section to meet the classroom size, equipment availability and safety concerns however in the 200s' courses the number of enrolled student decreases because the two cohorts (electronics program students and telecommunication students) degree bound started to take major technical courses on their

respective major of specialization. Furthermore student who have not pass the COMET is no longer allowed to take 200's courses. Also same thing happen on the student who have not pass the prerequisite of the 200s' courses.

Course	***Fall 08***	***Spring 09***	***Fall 09***	***Spring 10***	***Fall 10***	***Spring 11***
VEE100	*23(divided in three sections)*				*44(divided in three sections)*	
VEE103	*29(divided in two sections)*		*14*		*11*	
VEE110	*27(divided in two sections)*	*21(divided in two sections)*				
VEE104		*18*		*24(divided in two sections)*		
VEM110			*20(divided in two sections)*	*22(divided in two sections)*		
VEE135		*21(divided in two sections)*		*24(divided in two sections)*		*39(divided in two sections)*
VEE222					*15*	
VEE223	*14*		*10*			
VEE224		*13*		*6*		*14*
VEE225	*7*	*9*		*3*		*13*
VEE230	*13*		*6*			*10*
VEE235	*15*		*12*		*15*	
VEE240		*13*	*7*		*12*	
VEE250					*15*	
VTE260				*7*		
VTE261				*7*		
VTE270				*7*		
VTE280				*6*		
VTE281			*5*			

Table 3. Course enrollment rate by semester
Source: Program instructors class record book.

Due to the inception of modified courses in electronics technology it attracted more students than telecommunication program.

G. Program Faculty

Full time faculty

1. Gardner Edgar – Division Chairman, Assistant professor
   BS in Technology, Texas University

2. Nelchor Permitez – Associate Professor
   BSIE major in Electronics
   MIST, Philippines

   Master of Education (M.Ed.) major in Educational management
   MIST, Philippines

Doctor of Education (Ed.D.) major in Educational management, EARIST, Philippines

Part time faculty

1. Grilly Jack — Vocational Director
   USDOL Journeyman Certificate in Electrical
   U.S. Marine Corps Journeyman Certificate in Electrical

2. Bradley Henry — PUC Supervisor

H. Program Outcome Analysis

1. Program Enrollment

The table below indicates the enrollment data for the programs.

Semester	*COA EET*	*AAS ET*	*AAS TT*	*Total*
Fall 2008	*29*	*17*	*8*	*54*
Spring 2008	*22*	*14*	*12*	*48*
Summer 2009	*14*	*11*	*7*	*32*
Fall 2009	*34*	*15*	*7*	*56*
Spring 2010	*36*	*12*	*13*	*61*
Summer 2010	*21*	*12*	*8*	*41*
Fall 2010	*43*	*14*	*13*	*70*
Spring 2010	*1*	*27*	*30*	*56*
Spring 2011	*62*	*61*	*60*	*183*

Table 5. Electronics program and Telecommunication program enrollment per semester.

Source: OAR Pohnpei Campus and IRPO data in COM-FSM website.

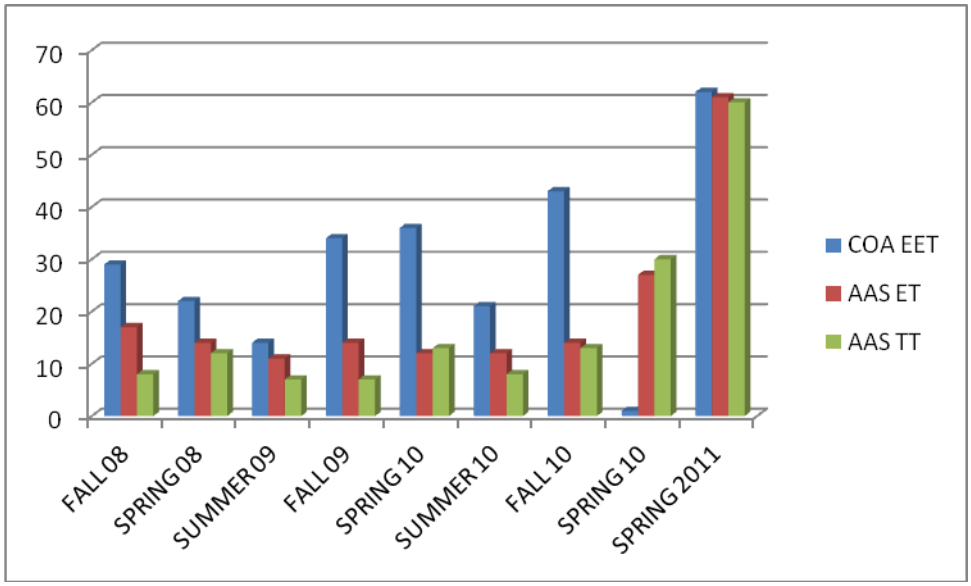

Figure 2. Graphical distribution of Electronics and Telecommunication program enrollment per semester.

Table 5 and figure 2, shows the enrollment distribution for certificate of achievement in electronics engineering technology (EET), associate of applied science in electronics technology (AAS ET) and associate of applied science in telecommunication technology (AAS TT). In Spring 2011 unprecedented increase of enrollment in the program is observe. Also note that in every fall semester enrollment increases while at spring it tend to decrease.

2. Graduation Rate

Table 6, show the number of degree graduates from spring 2008 to spring 2010. Despite of the figures shown in table 5, the graduate turn out for both program (Electronics technology and Telecommunication technology) is low.

Programs	***Sp08***	***Su08***	***Fa08***	***Sp09***	***Su09***	***Fa09***	***Sp10***	***Sp11***	***Total***
Electronic Technology	*2*	*0*	*2*	*3*	*0*	*4*	*1*	*2*	*14*
Telecommunication Technology	*0*	*0*	*0*	*0*	*0*	*0*	*2*	*2*	*4*

Table 6. Electronics and Telecommunication program graduation rate

Source: OAR Pohnpei Campus and IRPO data COM-FSM website.

Furthermore, the structure of the program which allows certificate level students to continue to a degree level started with many students (30 two cohorts) due to difficulties of passing the required courses because of the students low cognitive achievement or academic skills it is likewise the reason that makes the transition from certificate to degree level is low.

3. Average Class Size

The ideal class size for each course was base on room size, equipment and safety concerns. Minimum is ten (10) and maximum is fifteen (15). There are some cases the class size exceed on its maximum to accommodate graduating students.

4. Students' Seat Cost

No available data gather from Campus IC, Technology and Trade Division chair and IRPO.

5. Course Completion Rate for the Program

Course	***Fall 08***	***Spring 09***	***Fall 09***	***Spring 10***	***Fall 10***	***Spring 11***	***Mean percentile***
VEE100	20 out of 23, 87%				39 out of 44, 89%		88%
VEE103	23 out of 29, 79%		11 out of 14, 80%		11 out of 11, 100%		86%
VEE110	23 out of 27, 85%	18 out of 24, 61%					73%
VEE104		11 out of 18, 61%		21 out of 24, 87%			74%

VEM110			20 out of 20, 100%	20 out of 22, 90%			95%
VEE135		16 out of 21, 76%		23 out of 24, 95%		36 out of 39, 92%	88%
VEE222					12 out of 15, 80%		80%
VEE223	13 out of 14, 93%		8 out of 10, 80%				87%
VEE224		12 out of 13, 92%		5 out of 6, 83%		13 out of 14, 93%	89%
VEE225	7 out of 7, 100%	8 out of 9, 90%		3 out of 3, 100%		11 out of 13, 85%	94%
VEE230	13 out of 13, 100%		6 out of 6, 100%			10 out of 10, 100%	100%
VEE235	15 out of 15, 100%		12 out of 12, 100%		13 out of 15, 87%		96%
VEE240		11 out of 13, 85%	7 out of 7, 100%		12 out of 12, 100%		95%
VEE250					15 out of 15, 100%		100%
VTE260				6 out of 7, 100%			100%
VTE261				7 out of 7, 100%			100%
VTE270				6 out of 7, 86%			86%
VTE280				6 out of 6, 100%			100%
VTE281			5 out of 5, 100%				100%

Table 7. Course completion rate by semester
Source: Program instructors class record book.

6. Students' Satisfaction Rate

The data collected and shown are the student evaluation for course instructor. It was gathered at the office of Instructional coordinator at Pohnpei campus. The data show course code and semester, evaluation criteria, general weighted average, number of student evaluator and the legend which describe the degree of rated points.

	Course /Faculty/Semester		
Student evaluation criteria for course instructor	VEE240_F09	VEE230_F09	VTE281_F09
1. Keeps regular schedule every class day.	5	5	5
2. Shows interest in the subject.	5	5	5
3. Gives individual help as needed.	5	5	5
4. Avails himself/herself for student conference.	5	5	5
5. Welcomes questions, suggestions and discussion from students.	5	5	5
6. Shows interest and respect for students.	5	5	5
7. Helps the students in meeting individual learning needs.	5	5	5
8. Uses classroom lab fully.	5	5	5
9. Provides clear directions for assignment and instruction.	5	5	5
10. Grades fairly and frequently.	5	5	5

11. Makes the purpose of the course clear.	5	5	5
12. Talks clearly at an easy-to-follow speed.	5	5	5
13. Lessons are well paced with activity as well as lecture.	5	5	5
14. Makes the course interesting.	5	5	5
15. Textbooks were appropriate and helpful.	5	5	5
General weighted average	**5**	**5**	**5**
Number of students evaluator =	**7**	**4**	**4**

Legend:

5 = Always
4 = Usually
3 = Sometimes
2 = Rarely
1 = Never

	Course /Faculty/Semester		
Student evaluation criteria for course instructor	VEE235_N@F09	VTE280_N@S10	VTE260_N@S10
1. Keeps regular schedule every class day.	4.9	5	5
2. Shows interest in the subject.	4.9	5	5
3. Gives individual help as needed.	5	5	5
4. Avails himself/herself for student conference.	4.9	5	5
5. Welcomes questions, suggestions and discussion from students.	4.9	5	5
6. Shows interest and respect for students.	4.9	5	5
7. Helps the students in meeting individual learning needs.	4.8	5	5
8. Uses classroom lab fully.	4.9	5	5
9. Provides clear directions for assignment and instruction.	4.8	5	5
10. Grades fairly and frequently.	4.9	5	5
11. Makes the purpose of the course clear.	4.9	5	5
12. Talks clearly at an easy-to-follow speed.	4.9	5	5
13. Lessons are well paced with activity as well as lecture.	4.9	5	5
14. Makes the course interesting.	4.9	5	5
15. Textbooks were appropriate and helpful.	4.7	5	5
General weighted average	**4.88**	**5**	**5**
Number of students evaluator	**9**	**8**	**6**

Student evaluation criteria for course instructor	VEE135_N@S10	VEE135_G@S10	VEE104_G@S1O
1. Keeps regular schedule every class day.	5	4.6	4.5
2. Shows interest in the subject.	4.7	4.5	4.5
3. Gives individual help as needed.	4.8	4.5	4.7
4. Avails himself/herself for student conference.	4.7	4.5	4.3
5. Welcomes questions, suggestions and discussion from students.	4.5	4.6	4.5
6. Shows interest and respect for students.	5	4.3	3.5
7. Helps the students in meeting individual learning needs.	4.6	4.8	4.6
8. Uses classroom lab fully.	4.9	4.5	4.3
9. Provides clear directions for assignment and instruction.	4.7	4.6	4.4
10. Grades fairly and frequently.	4.9	4.6	4.7
11. Makes the purpose of the course clear.	4.7	3.8	4.6
12. Talks clearly at an easy-to-follow speed.	4.8	4.5	4.2
13. Lessons are well paced with activity as well as lecture.	4.8	4.4	4.4
14. Makes the course interesting.	4.6	4.6	4.4
15. Textbooks were appropriate and helpful.	4.4	4.3	4.1
General weighted average	**4.74**	**4.47**	**4.38**
Number of students evaluator	**14**	**9**	**17**

Legend:

5 = Always

4 = Usually

3 = Sometimes

2 = Rarely

1 = Never

	Course/Faculty/Semester			
Student evaluation criteria for course instructor	VTE261_S10	VEE223_F10	VEE135/P1_S11	VEE135/P2_S11
1. Keeps regular schedule every class day.	5	4.6	4.9	4.4
2. Shows interest in the subject.	5	4.5	5	4.9
3. Gives individual help as needed.	5	4.8	5	4.9
4. Avails himself/herself for student conference.	5	4.7	4.9	4.8
5. Welcomes questions, suggestions and discussion from students.	5	4.9	4.8	4.8
6. Shows interest and respect for students.	5	4.4	5	4.8
7. Helps the students in meeting individual learning needs.	5	4.7	4.9	5
8. Uses classroom lab fully.	5	4.8	4.8	4.9
9. Provides clear directions for assignment and instruction.	5	4.8	4.9	5
10. Grades fairly and frequently.	5	4.8	5	5
11. Makes the purpose of the course clear.	5	4.9	5	5
12. Talks clearly at an easy-to-follow speed.	5	4.5	4.9	4.9
13. Lessons are well paced with activity as well as lecture.	5	4.9	5	4.9
14. Makes the course interesting.	5	4.8	4.9	5
15. Textbooks were appropriate and helpful.	5	4.9	4.8	4.4
General weighted average	**5**	**4.73**	**4.92**	**4.85**
Number of students evaluator	**10**	**10**	**10**	**10**

Legend:
5 = Always
4 = Usually
3 = Sometimes
2 = Rarely
1 = Never

7. Employment Data

Name	Degree	Current Employer
1. Gallen, Kalio	AAS_T	FSM Telecommunication
2. Henry, Patrick	AAS_T	FSM Telecommunication
3. Siola, Billy	AAS_T	FSM Telecommunication
4. Tally, Paul	AAS_T	FSM Telecommunication
5. Andres, Rudy	AAS_E	Ponpei Conservation
6. Gilmete, Christopher	AAS_E	COM-FSM National (I.T.)
7. Pretrick, Henry	AAS_T	FSM Telecommunication
8. Wolphagen, Childen	AAS_T	FSM Telecommunication
9. Arnold, Alcabone	AAS_T	Self employed
10. Kihleng, Marcia	AAS_E	U.S. mainland
11. Joseph, Roseann	AAS_E	Self employed
12. Hadley, Herbert	AAS_E	U.S. Arkansas
13. Meingin, Renson	AAS_T	Hawaii
14. Penias, Taylor	AAS_E	Teacher in Madolenihmw
15. Soaz, Sayse	AAS_E	Self employed
16. Amor, Gene	AAS_T	Pohnpei State Hospital maintenance
17. Anson, Vinson	AAS_E	U.S. Marine Corps

18. Joel, Natahniel	AAS_E	Pohnpei working as accountant
19. Lippwe, Ervin	AAS_T	U.S. mainland
20. Ucherkemur, Kelulau	AAS_E	U.S. Army
21. Gallen, Roby	CA_E	U.S. Marines
22. Etse, Cooper	AAS_E	COM-FSM Pohnpei (I.T.)
23. Stepehen, Hank	AAS_E	U.S. Mississippi (Technician)
24. Johhny, Mathew	AAS_E	Pohnpei Computer Consultant
25. Simon, Geoffrey	AAS_E	LEO ‘s Enterprises (I.T.)

Table 8. Graduated students list Applied Associate Science in Electronics (AAS_E), Applied Associate Science in Telecommunication (AAS_T) and current employer
Source (Employer, friends and relatives interviews and surveys)

8. Transfer Rate

Name	Degree	Current School Enrolled
1. Neth, Julian	BSIT	Mainland China
2. Perman, Deatra Chrystal	BSEE	University of Hawaii
3. Lippwe, Irvin	BSECE	Mainland U.S.A.
4. Movick, Marie Bernadeth	BSEE	University of Guam
5. Johnny, Sherwin	BSCE	University of Hawaii

Table 9. Graduated student pursuing for bachelors degree
Source (Friends and relatives interviews and surveys)

Table 8 , show the table of students that graduate the program and their current employer. Table 9, show the transfer rate table, the list of student who completed the program and currently pursuing a higher education.

9. Programs’ Student Learning Outcomes

Program Learning Outcomes [PLOs] for both programs have been assessed from fall 08 to summer 10. Since both AAS programs utilized the Certificate of Achievement [Electronic Engineering Technology] as the first-year of the two-year AAS degree program, both programs have the same first-four PLOs as stated below:

Certificate in Electronics Engineering

1. Practice safety and occupational health procedures in the workplace.
2. Use electronics tools and test equipment competently.
3. Interpret schematic diagrams and waveforms.
4. Build electronics projects to a given specification.

PLOs for the Advanced Certificates and AAS Degree programs are listed below:

Electronics Technology

5. Perform troubleshooting techniques to maintain, diagnose, and repair personal computer systems.
6. Perform troubleshooting techniques to maintain, diagnose, and repair office equipment, and video & audio equipment and systems.

Telecommunications Technology

1. Practice safety and occupational health procedures in the workplace.
2. Use electronics tools and test equipment competently.
3. Interpret schematic diagrams and waveforms.
4. Build electronics projects to a given specification.
5. Practice a career in the Telecom Industry.
6. Troubleshoot radio communication, microwave, fiber optic and telephone systems.

Summary of recommendation:

A. Modify courses to increase more time for students to practice hands-on and master skills of the trade.

B. Students who were rated as Developing need more time to practice. Students who were rated as Unacceptable are students who never put in enough effort to learn the outcomes.

Student performance is rated by instructor using a rubric which indicates three levels of performance rating: **exemplary (E), developing (D), and unacceptable (U).**

- *Exemplary – students who passed written exams with a score of 90 or higher. And students who performed practical tasks with no or minimum assistance from instructor to successfully complete assigned tasks.*
- *Developing – students who passed written exams with a score between 70 and 89. And students who performed practical tasks with some assistance from instructor to successfully complete assigned tasks.*
- *Unacceptable – students who failed [60 or below] written exams and performed poorly in completing tasks or never completed tasks.*

See Appendix B for electronics technology program and telecommunication technology program worksheet #2 (Program plan) and worksheet #3(Assessment report) from Fall 2008 to Spring 2011.

10. Students' Learning Outcomes for Program Courses

SLO for all courses in both programs are assessed as the courses are offered in each semester. Written and performance exams are embedded in mid term and final exams to assess SLO for each course.

CERTIFICATE OF ACHIEVEMENT IN ELECTRONIC ENGINEERING TECHNOLOGY

VEE100 Soldering and Termination Techniques

1. Identify and perform the techniques for printed circuit track and pad repair as well as component insertion and extraction.
2. Select the correct connection type and create reliable solder joints using basic hand soldering techniques.
3. Demonstrate the correct method of terminating the following basic connectors.
   - Banana Plugs
   - Crimp Connectors
   - BNC Connectors
4. Describe the characteristics of, and the procedures for making good wire wrap connections. Recognize common wire wrapping faults and correctly terminate wire wrap connections.
5. By measurement perform basic wiring and connector troubleshooting.

VSP121 Industrial Safety

1. Understand how a person can receive an electrical shock.
2. Identify common electrical hazards.
3. Identify safety hazards that can occur in the workplace and be able to report potential hazards prior to an accident-taking place. (Work place safety Inspection)
4. Be able to identify the common safety equipment and its use.
5. Use appropriate personal protective equipment (PPE) and safety equipment.
6. Demonstrate the correct use of ladders.
7. Demonstrate safe practices with extension leads and the use of Ground Fault Interrupters (GFI)
8. Safely use manual handling equipment.
9. List the requirements of a first aid kit.
10. Demonstrate safe handling practices for Hazardous chemicals and list their storage methods.

VEM110 Workshop Fabrication

1. Define wire, cable, and harness.
2. Identify solid and stranded wires.
3. Understand the difference between a plug and a jack.
4. Understand the purpose of a connector.
5. Recognize the tools that are used to build and test wire, cable, and connector assemblies.
6. Identify the steps used to prepare, build, and test single wire assemblies.
7. Build and test single wire assemblies using FASTON type connector, butt splice, and .156 series connectors.
8. Build and test flat satin cable assemblies using RJ-11, RJ-14, and RJ-45 connectors.
9. Describe and discuss the common cabling standards as they pertain to telecommunications networks.
10. Describe and discuss the types of cables used for telecommunication network cabling.
11. Describe and discuss the Categories of Performance for telecommunication network cabling.
12. Build and test a twisted pair cable using RJ-45 connectors.
13. Build and test a multi-wire cable assembly using 9-pin D-Sub connectors.
14. Build and test a coaxial cable assembly using F-Type and BNC connectors.

15. Bread-boarding Techniques: construct and analyze DC and AC circuits.

VEE103 Electronic Fundamentals I

1. Describe the basic concept of voltage and current and the behavior of these parameters in simple electrical circuits.
2. Explain the purpose and identify the various types of resistors and their symbols. Identify the value, power rating and tolerance of resistors using various types of industry codes.
3. Describe the purpose and types of switches, fuses and circuit breakers and identify their schematic symbols.
4. Define magnetism and electromagnetism and their characteristics; describe how these characteristics are utilized in the operation of the relay, magnetic circuit breaker and meter.
5. Describe the function of the multimeter and its controls. Safely and accurately use a multimeter to measure the circuit quantities of resistance, voltage, and current.
6. Using Ohm's Law to define the relationship between resistance, voltage, current, and power in an electrical circuit. By experimentation prove Ohm's Law.
7. Identify the following circuits, calculate and measure the circuit parameters of voltage, resistance, and current. Troubleshoot the series, parallel and series-parallel circuits.
    a. Series Circuit
    b. Parallel Circuit
    c. Series and Parallel Circuit
    d. Voltage Divider Circuit
    e. Bridge Circuit
8. Simplify and analyze complex circuits using the following methods:
    a. Kirchoff's Laws
    b. Thevenin's Theorem
    c. Norton's Theorem

VEE104 Electronic Fundamental II

1. Describe the basic principles of alternating current and analyze various ac waveforms (such as sine-wave, square-wave, saw tooth-wave, etc…) by determining their frequency/cycle in Hertz, period (Time), and other parameters, such as voltage & current values (as in peak, peak-to-peak, average, and RMS), phase relationships, magnitude, and degree (angle).
2. Explain the operation of an AC generator and its characteristics.
3. Use Ohm's Law to calculate voltage, resistance, and current in an AC circuit and to discuss the relationship between the three quantities.
4. Describe the function of an oscilloscope and its controls. Also, students demonstrate how to accurately and safely set up an oscilloscope to measure voltage and frequency.
5. Describe the function of a function generator and its controls. Safely and accurately use a function generator to adjust and modulate various output signals.
6. Describe the function of a frequency counter and its controls. Students demonstrate how a frequency counter is set up for normal operation to perform calibration, other measurements, and how to compare frequency and period measurements using a frequency counter and an oscilloscope.
7. Describe the purpose of an inductor, its current opposing characteristics, and applications and identify various types of inductors, unit of measurement, and its schematic symbol.

8. Analyze the following circuits by calculating total inductance, total reactance, and total impedance; by measuring phase relationship between voltage & current and phase difference between inductive & resistive branches in an RL circuit; and by performing troubleshooting practices to identify faults in an RL circuit.
9. Describe an RL Filter circuits and its circuit characteristics, and by experimentation, compare the calculated and measured values in an RL Filter circuit.
10. Describe the construction, normal operation, measurement, and the characteristics of charge & discharge of a capacitor and identify the various types of capacitors, schematics symbols, and capacitance & voltage values.
11. Analyze the following circuits by calculating total capacitance, total reactance, and impedance. Measure voltage & current phase relationship of an RC Series & Parallel circuits. Troubleshoot RC circuits for faults.
12. Describe an RC Filter Circuit and its characteristics. By experimentation, measure and calculate RC filter circuits.
13. Describe and measure circuit values on RC Time Constant operations. Analyze and troubleshoot RC Circuit Transient.
14. Identify and describe RCL/LCR circuits. Analyze and troubleshoot an LCR series & parallel circuits by experimentation.
15. Describe the operation and the effects of a Series/Parallel Resonant circuits. Troubleshoot series/parallel resonant circuits by experimentation.
16. Describe the purpose, operation, and characteristics of a transformer. Calculate and measure primary & secondary parameters of a transformer. Troubleshoot a transformer to determine faults.

VEE110 Discrete Devices I

1. Explain the construction, principle of operation and testing method of diodes.
2. Describe the operation of diodes on how it is used as limiters and clampers.
3. Identify BJT schematic symbols and the base, emitter and collector leads. The student will also be able to describe transistor DC bias, transistor cutoff and saturation, and the parameters of Alpha and Beta.
4. Describe the purpose of an amplifier, the classes of operation and identify the three main BJT configurations.
5. Recognize FET schematic symbols, describe the construction and operating characteristics of FETs and identify basic FET amplifiers.
6. Describe the operation of common source Junction FET (JFET) amplifiers and verify normal operation through measurement of circuit parameters.
7. Recognize Metal Oxide Silicon FET (MOSFET) schematic symbols and describe the construction and operation of Depletion and Enhancement mode MOSFET's.
8. Describe the operation of the following types of rectification
    - Half wave
    1. Full wave
    1. Bridge
9. Describe the operation of various RC and RL filter circuits.
10. Describe the operation of zener diodes and basic zener voltage regulators.
11. Identify voltage regulator circuits and explain their operation.
12. Describe the purpose and operation of an I.C. Regulator.

VEE125 Electronic Circuits

1. Describe the purpose of Multistage Transistor Amplifiers.
2. Describe the operating characteristics and measure the circuit parameters of RC coupled Transistor Amplifiers.
3. Describe the operating characteristics and measure the circuit parameters of Push-Pull Amplifiers.
4. Describe the troubleshooting method of signal tracing a Multistage Transistor Amplifier.
5. Practice Multistage Transistor Amplifier Troubleshooting.
6. Describe the purpose of various Sine Wave Oscillators.
7. Describe the operating characteristics and measure the circuit parameters of Hartley Oscillators.
8. Describe the operating characteristics and measure the circuit parameters of Colpitts Oscillators.
9. Describe the operating characteristics and measure the circuit parameters of RC Phase Shift Oscillators.
10. Describe the operating characteristics and measure the circuit parameters of Crystal Controlled Oscillators.
11. Describe the operating characteristics and measure the circuit parameters of Sawtooth Oscillators.
12. Describe the operating characteristics and measure the circuit parameters of Blocking Oscillators.
13. Describe typical Hartley and Colpitts Oscillator faults, recognize when a Hartley and Colpitts Oscillator is faulted and identify the faulted component.
14. Describe typical RC Phase Shift and Crystal Controlled Oscillator faults, recognize when a RC Phase Shift and Crystal Controlled Oscillator is faulted and identify the faulted component.
15. Describe typical Non Sine Wave Oscillators, like Sawtooth and Blocking Oscillator faults, recognize when a Non Sine Wave Oscillator like Sawtooth and Blocking Oscillator is faulted and identify the faulted component.

VEE135 Digital Electronics I

1. Identify and describe the history and development of digital electronics.
2. Describe digital electronics hardware.
3. Describe the basic operating principles of buffers and inverters.
4. Describe various digital test equipment and their operating characteristics.
5. Explain the purpose and the operation for the 555 Timer.
6. Describe the purpose, construction, and operation of various integrated circuits.
7. Define electrostatic devices and demonstrate how to properly handle electrostatic devices.
8. Identify and describe the AND gate operation. Measure input to output waveforms.
9. Identify and describe the OR gate operation. Measure input to output waveforms.
10. Identify and describe the NOT gate operation. Measure input to output waveforms.
11. Identify and describe the NAND gate operation. Measure input to output waveforms.
12. Identify and describe the NOR gate operation. Measure input to output waveforms.
13. Identify and describe the XOR gate operation. Measure input to output waveforms.
14. Describe the purpose and operation of various combinational circuits.
15. Describe the different types of logic families and their operating characteristics.

16. Describe the number systems used in digital electronics. Perform mathematical calculations and conversions using digital mathematics.
17. Describe how a decimal encoder performs base 10 to binary conversion.
18. Describe how a binary decoder performs binary to 7 segment conversions.
19. Identify and describe the operation of a 4-bit comparator.
20. Explain the basic operating principles of a flip-flop circuit.
21. Identify and describe the purpose and the operation of an RS flip-flop circuit.
22. Identify and describe the purpose and the operation of a Clocked RS flip-flop circuit.
23. Identify and describe the purpose and the operation of a D-type flip-flop circuit.
24. Identify and describe the purpose and the operation of a JK flip-flop circuit.
25. Identify and describe the purpose and the operation of a Master Slave flip-flop circuit.

ADVANCED CERTIFICATE IN ELECTRONIC TECHNOLOGY

VEE222 Discrete Devices II

1. Describe the purpose and operation characteristics of UJTs and SCRs.
2. Describe UJT oscillator operation.
3. Describe SCR trigger control operation.
4. Describe SCR power control operation.
5. Describe SCR circuit troubleshooting.
6. Describe the relationship between Triacs and SCRs, and Diacs and four-layer devices. Observe the effect of DC and AC voltages on Triac operation.
7. Describe the construction, operation and applications of PUT devices.

VEE235 Digital Electronics II

1. Describe the basic operating principles of registers and memory circuits.
2. Identify the purpose and probe the input and output of a 4-bit storage register.
3. Identify the purpose and probe the input and output of a 4-bit shift register.
4. Identify the purpose and probe the input and output of an 8-bit shift register.
5. Describe the normal operation and the characteristics of a 64-bit memory circuit.
6. Describe how counting circuits perform arithmetic functions.
7. Describe the normal operation of a ripple counter circuit.
8. Describe the purpose of an up counter circuit and probe its output.
9. Describe the purpose of a down counter circuit and probe its output.
10. Describe the function and the operating characteristics of a 4-bit adder circuit.
11. Describe the normal operation of a 4-bit subtractor circuit.
12. Explain the basic operating principles of conversion and data circuit.
13. Identify the purpose of a D/A conversion circuit and its operating characteristics.
14. Identify the purpose and describe the basic operation of a data selector circuit and measure its output signals.
15. Describe the function of a data distribution circuit and its operating characteristics and measure its output signals.

VEE223 PC Hardware & Software

1. Build, configure, upgrade, and maintain a personal computer system.
2. Diagnose and resolve problems of a personal computer system.

3. Install and configure various computer peripheral devices.
4. Resolve network connectivity problems on a local area network using a systematic troubleshooting approach.
5. Install, configure, upgrade, and maintain Microsoft Windows operating systems.
6. Diagnose and resolve problems using Microsoft Windows system tools.
7. Utilize relevant workplace safety and environmental standards during computer maintenance.
8. Effectively utilize a customer-oriented approach to resolve user problems.
9. Provide computer hardware and software support based upon a set of standard and systematic diagnostic principles.

AAS in ELECTRONIC TECHNOLOGY

VEE224 Video Systems & Product Servicing

1. Service and Repair Television (TV) Systems/Computer Monitors
    a. explain the principles and operations of a TV/ Computer monitor system
    b. identify the stages and circuits of a TV / Computer monitor system
    c. adjust TV / Computer Monitors controls and service mode settings (operator and service control)
    d. hook-up MATV and CATV
    e. trace block and schematic diagram of the TV System / Computer Monitor circuits
    f. check and measure voltage and waveform on each test points
    g. position TV / Computer system properly for servicing
    h. demonstrate maintenance procedure accurately
    i. identify the symptoms and effect of TV/ Computer system circuit stages failures
    j. perform actual troubleshooting
    k. check and replace passive and active components embedded in TV / Computer System circuits
    l. perform burn testing for repaired TV / Computer monitor system
    m. discuss data gathering procedure on pre-service and post-service of TV / computer monitor system and follow safety precaution in TV / computer monitor servicing

2. Service and Repair Video Cassette Recorder (VCR)
    a. explain the principles of operation of VCR (playback and
    b. recording)
    c. identify the stages and circuits of VCR
    d. identify and adjust VCR operator and service controls,
    e. hook-up VCR in playback recording and tuner mode,
    f. trace the block and schematic diagram of VCR (Power supply, System control, Audio Video and Servo circuit),
    g. check and verify the voltages and signal waveform of each test points set on service manuals set the VCR on service position,
    h. check and replace defective passive,
    i. active and mechanical components or parts,
    j. perform maintenance procedure according to service manual,

k. perform testing procedure for the repaired VCR,
l. discuss data gathering procedure on pre-service and post-service of VCR system and follow safety precaution in TV servicing.

3. Service and Repair Compact Disc (CD)
    a. Explain the principles of operation of CD (playback and recorder)
    b. discuss the basic configuration and function of pulse coded modulation (PCM) recording and reproduction
    c. identify the configuration of CD
    d. identify the stages and circuits of CD
    e. identify and adjust CD operator and service controls
    f. trace the block and schematic diagram of CD (Power supply, System control, Audio and Servo circuit)
    g. check and verify the voltages and signal waveform of each test points set on service manuals
    h. set the CD on service position
    i. check and replace defective passive
    j. active and mechanical components or parts
    k. perform maintenance procedure according to service manual
    l. perform testing procedure for the repaired CD
    m. discuss data gathering procedure on pre-service and post-service of CD system follow safety precaution in CD servicing

4. Service and Repair Digital Video Disc (DVD*)*
    a. explain the principles of operation of DVD (playback and recorder)
    b. discuss the basic configuration and function of pulse coded modulation (PCM) recording and reproduction
    c. identify the configuration of DVD
    d. identify the stages and circuits of DVD
    e. identify and adjust DVD operator and service controls
    f. trace the block and schematic diagram of DVD (Power supply, System control, Audio, Video and Servo circuit)
    g. check and verify the voltages and signal waveform of each test points set on service manuals
    h. set the DVD on service position
    i. check and replace defective passive
    j. active and mechanical components or parts
    k. perform maintenance procedure according to service manual
    l. perform testing procedure for the repaired DVD
    m. discuss data gathering procedure on pre-service and post-service of DVD system
    n. demonstrate safety precaution in DVD servicing

<u>VEE225 Business Machines Servicing</u>

1. Service and Repair Fax Machine
    a. Explain the principles and operations of a fax machine.
    b. Identify the parts and functions using service manual.

c. Perform maintenance procedures by following service manual.
d. Set-up the machine for service and repair using service manual.
e. Identify common faults/ trouble based on service manual.
f. Use reference materials to identify and find parts replacements/substitutions.
g. Apply symptoms analysis and diagnosis using service manual.
h. Assemble and disassemble using service manual.

2. Service and Repair Computer Printers
   a. Explain the principles and operations of the Laser and DeskJet printers.
   b. Identify the parts and functions using service manuals.
   c. Perform maintenance procedures by following service manuals.
   d. Set-up the machines for service and repair using service manuals.
   e. Identify common faults/ trouble based on service manuals.
   f. Use reference materials to identify and find parts replacements/substitutions.
   g. Apply symptoms analysis and diagnosis using service manuals
   h. Assemble and disassemble using service manuals

3. Service and Repair Cash Register
   a. Explain the principles and operations of a cash register machine.
   b. Identify the parts and functions using service manual.
   c. Perform maintenance procedures by following service manual.
   d. Set-up the machine for service and repair using service manual.
   e. Identify common faults/ trouble based on service manual.
   f. Use reference materials to identify and find parts replacements/substitutions.
   g. Apply symptoms analysis and diagnosis using service manual.
   h. Assemble and disassemble using service manual

5. Service and Repair Photocopier Machine
   a. Explain the principles and operations a photocopier machine.
   b. Identify the parts and functions using service manual.
   c. Perform maintenance procedures by following service manual.
   d. Set-up the machine for service and repair using service manual.
   e. Identify common faults/ trouble based on service manual.
   f. Use reference materials to identify and find parts replacements/substitutions.
   g. Apply symptoms analysis and diagnosis using service manual.
   h. Assemble and disassemble using service manual

6. Service and Repair Microwave Oven
   a. Explain the principles and operations of a microwave oven.
   b. Identify the parts and functions using service manual.
   c. Perform maintenance procedures by following service manual.
   d. Set-up the machine for service and repair using service manual.
   e. Identify common faults/ trouble based on service manual.
   f. Use reference materials to identify and find parts replacements/substitutions.
   g. Apply symptoms analysis and diagnosis using service manual.
   h. Assemble and disassemble using service manual.

<u>VEE240 Signal Processing</u>

1. Give general descriptions of analog pulse modulation, Pulse Amplitude Modulation (PAM), Pulse Width Modulation (PWM), and Pulse Position Modulation (PPM).
2. Describe Pulse Code Modulation (PCM), PCM circuit operation and troubleshoot PCM circuits.
3. Describe Delta Modulation (DM), DM circuit operation and troubleshoot DM circuits.
4. Describe Frequency Shift Keying (FSK), FSK circuit operation and troubleshoot FSK circuits.
5. Describe Phase Shift Keying (PSK), PSK circuit operation and troubleshoot PSK circuits.
6. Describe Time Division Multiplexing (TDM), TDM circuit operation and troubleshoot TDM circuits.
7. Describe Frequency Division Multiplexing (FDM), FDM circuit operation and troubleshoot FDM circuits.

ADVANCED CERTIFICATE in TELECOMMUNICATION TECHNOLOGY

VEE235 Digital Electronics II [same as above]

VEE240 Signal Processing [same as above]

VEE230 Radio Communications

1. Describe the basic communication system, various signal-processing techniques and the safety precautions to be observed when dealing with this type of equipment.
2. Describe and measure Amplitude Modulated (AM) signals.
3. Describe and measure Frequency Modulated (FM) signals.
4. Identify Single Sideband (SSB) transmitters and receivers, different types of transmission lines and their characteristics.
5. Describe Amplitude Modulated signals.
6. Describe basic AM circuit construction.
7. Measure signals in a diode modulator and demodulator circuit.
8. Troubleshoot Amplitude Modulated transmitter and receiver systems.
9. Describe Frequency Modulated circuits.
10. Describe basic Frequency Modulated circuit operation.
11. Describe Frequency Modulated transmitter and receiver circuits.
12. Observe the operation and measure signals in an integrated circuit (IC) transmitter and receiver system.
13. Troubleshoot Frequency Modulated transmitters and receivers.

AAS in TELECOMMUNICATION TECHNOLOGY

VTE261 Fiber Optics Installation

1. Describe the fundamentals of a fiber optic communication system.
2. Explain the safety precautions and the proper work practices associated with fiber optics
3. List the applications and advantages of fiber optics.
4. Describe the construction, components, tools, and operating characteristics of a fiber optic cable.
5. Identify and describe the loss factors in a fiber optics cable.
6. Describe the proper procedures of a fiber optics installation in compliance with NEC and TIA/EIA standards.
7. Safely and properly use the OTDR to test and troubleshoot a fiber optic cable or installation.
8. Safely and properly prepare a fiber optic cable.
9. Safely and properly perform fiber preparation procedures.
10. Safely and properly perform fiber optics splicing procedures: Fusion and Mechanical.

VTE260 Microwave

1. Describe the basic concept of microwaves.
2. Explain the basic principles of microwave systems.
3. Describe the operation of microwave transmitters.
4. Describe the operation of microwave receivers.
5. Compare waveguides with other methods of energy transfer.
6. Describe the theory and operation of horn antennas, microwave reflectors and lenses.
7. Describe cavity resonators and tube microwave devices.
8. Describe the theory of semiconductor microwave devices.

VTE270 Telecommunication Systems

1. Describe the basic fundamentals of a telecom system.
2. Describe the various types of connection links used by industry for telecommunication system worldwide.
3. Describe the common switching operations found in the telecommunications industry.
4. Describe the different types of broadcast systems commonly used by industry and government.
5. Define spread spectrum modulation and describe its general purpose and its applications.
6. Describe the basic operating principles of wired and wireless computer network.
7. Describe the operating principles of satellite systems and its advantages and limitations.

VTE280 Telephone Systems

1. Describe the major sections of the basic elements in a telephone system.
2. Describe the telephone system used in the U.S. and the F.S.M.
3. Describe and troubleshoot the operations of the mechanical and electronic telephone sets.
4. Describe and demonstrate two methods of signal processing and two types of connection links that are commonly used today's telecommunications, or telephone systems.
5. Describe cellular telephone from a theoretical and hardware perspective.

See appendix A for electronics technology program and telecommunication technology program course level assessment for Fall 2008 to Spring 2011for a detailed result on the assessment for each abovementioned courses.

I.a. Discussion on findings

1. Program Enrollment. As shown in table 5, from fall 2008 to spring 2011 it is evidently seen the gradual increase of enrollment in both program offered courses per semester.
2. Graduation rate. As shown in table 6, electronics technology program produce 14 graduates and telecommunication program produce 4 graduates. Certificate level students tends to fail classes but more often in general education this delay the students finishing the required courses for the program thus result to low graduation rate.
3. Average class size: 10 students minimum and 15 students maximum.
4. Students' seat cost: No available data can be found.
5. Course completion rate for the program: As shown in table 7, from fall 2008 to spring 2011 which shows a range of 73% to 100% mean average. There is a significant passing rate for student per courses from each courses offered per semester.
6. Students satisfaction rate: the data collected for this section is coming from the student evaluation for the course instructor. It shows a high satisfaction rating result as tabulated for each courses by semester for both program courses rated by the students.
7. Employment data: Most of the students graduated in both programs are employed in FSM telecom, U.S. military, U.S. mainland employed in different companies, COM-FSM, on-island employed and others were self employed.
8. Transfer rate: Five (5) students were track pursuing their further education in U.S. and one in China.

I.b. Recommendations

1. Set a cutoff mark in the English placement exam as a requirement for student to enter in the COA program. Modify the existing MS104 Technical Math I course by changing its prerequisite to by admission and include an exit test as part of the course requirement.
2. Both programs courses outline must be increase the number in the hands-on or practical training approach hours to raise the skills competency of the students.
3. Student seat cost data must be revisited by IRPO or business office to determine the actual seat cost per course. The data must be always available in either the two mentioned offices.
4. The programs must be modify every three years cycle to include current trends in the technology to make the students more competitive for employment.
5. Modify technical courses to increase hands-on and practical application hours.
6. Modify the COA program to merge safety, workshop fabrication, and soldering into one course. And create a new course on electronic test equipment (Instrumentation & Measurement).
7. Modify the Electronic Technology program to include a course in audio systems and servicing.
8. Modify courses in Telecommunication Technology program to improve coursework on wireless systems and servicing of telecommunication systems to meet industry standards.
9. Introduce Computer Networking as part of the existing curriculums for both programs.

10. Instructors to actively participate in workshops, trainings, and conventions to be introduce to ensure instructional methods and materials are up-to-date with the industry standards.
11. Improve the data collection process. All the data use as health indicators must always be available for each programs.
12. IRPO must include to their research regarding the whereabouts of the students after graduation by including the tracking mechanism in our website for our graduate to register and voluntary gave their current employment and educational attainment data to make future evaluation of our program much valid and reliable.
13. Program review should be headed by someone other than instructors. Hence instructors are already overloaded with task doing teaching duties, prepare SLO and PLO annually.
14. The college needs to develop a mechanism to track students who graduated in the program to feed the employment data records for program review effectiveness purposes.
15. Formula for computing the seat cost must be provided by the college to know the exactness of the overhead cost of running the program per student.
16. Modify the existing program to allow the degree bound students to finish in 2 1/2 years.
17. SIS must have a way not to accept the student to register unless the prerequisite is meet.
18. Challenge of accommodating three cohorts (certificate, electronics AAS and telecommunication AAS) with 2 full time instructor, thus every semester instructor tends to have overloads. Hence difficulties of providing better schedule to allow the student to complete the program course requirement at shortest possible time.