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| AP Full Official  | ***Certificate of Achievement(COA) in Electronic Engineering Technology (EET)*** |
| Campus | ***Pohnpei Campus*** | AP Review Submission Date | ***March 28, 2014*** |
| Completed by | ***Gardner Edgar*** | AR Review Cycle | ***2012 - 2014*** |
| **Program Goals** |
| Program goals are broad statements concerning knowledge, skills, or values that the faculty members expect the graduating students to achieve. |
| * ***Demonstrate entry level skills that are needed to pursue a career as a technician in the field of electronic or related areas.***
* ***Demonstrate intellectual skills and critical thinking skills to become effective learners and well informed citizen.***
 |
| **Program History** |
| This section describes the history of the program. This includes the date and reason of implementation, significant milestones in the development of the program, and significant current activities. |
| ***Milestones:*** * ***1999 - The first course was offered with 5 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***
* ***2003 – First certificate graduates***
* ***2005 – Since the program served as the foundation of AAS ET and TT, two cohorts or more are needed for every semester. This led to teaching overloads and utilization of part-time instructors.***
* ***2011 – Due to low graduate rates or low number of students completing requirements within three or four semesters, program discouraged enrolling certificate-bound students. Certificate-bound students have great difficulties in completing the required courses in three or four semesters.***
* ***2012 – Due to the above claim, official request was send to VPIA office to prohibit certificate-bound students to enroll in the program. It was rather suggested that certificate should be viewed as an exit level.***
* ***Presently, program is focused in recruiting degree-bound students for fall 2014.***
 |
| **Program Description** |
| The program description describes the program, including its organization, relationship to other programs in the system, program design, degree(s) offered, and other significant features of the program, such as elements/resources for forward-looking new program contributions to the state’s economy, or specialized program accreditation. |
| ***The program serves as the foundation of the AAS ET and TT programs. Students must complete it before continuing into the AAS programs.******Electronic Engineering Technology program offers academic course work, technical skills training and practical experience to prepare the students for positions in the Electronic industry. Its primary purpose is to provide students with marketable entry-level skills in the electronic industry or any related field/career. The program qualifies 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 workforce. The academic and technical coursework will also prepare students to pursue advanced training in the area at higher institution*** |
| **Program Admission Requirements** |
| This section describes the requirements for admission into the program and other requisites. |
| ***Initially, it has the same admission requirements of the other T&T certificate programs as stated below: [extracted from catalog, page 32]****“Admission to Certificate of Achievement Programs: High school graduates and General Education Development certificate holders who are not accepted into or are not interested in a degree program may apply for admission into an entry-level certificate of achievement program.”****However, current development over the years, it was proposed in 2012 that the program would now change its admission requirement to recruiting degree-bound students.******EET program had a different general requirements compared to other T&T certificate programs. Recent course modifications have suggested required requisites or the reading and writing level of students must be at ESL089/099 or better and a math level or MS100 or better. This is a necessary admission requirement to ensure students in program would be able to complete all requirements within 3 or 4 semesters (including summer) as suggested in the catalog.*** |
| **Program Certificate/Degree Requirements** |
| This section specifies the requirements for obtaining a certificate/degree in the program, including specific courses,, sequencing of courses, total credits, internships, practical, etc.  |
| ***General Education Core Requirements……………………………..****15 credits* *MS 104 Technical Math I (4)* *MS 106 Technical Math II (4)* *CA 100 Computer Literacy (3)* *Any Science with lab (4) [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*** |
|  **Program Courses and Enrollment** |
| This section lists courses offered in the program, including number of sections, course enrollment, section fill rates, and redundancy of courses across the institution. |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Courses** | **Fall 2011** | **# of Sec** | **Sp 2012** | **# of Sec**  | **Sum 2012** | **# of Sec** | **Fall 2012** | **# of Sec** | **Sp 2013** | **# of Sec** | **Sum 2013** | **# of Sec** |
| *VSP 121* |  |  |  |  |  |  |  |  |  |  |  |  |
| *VEE100* | 33 | 2 |  |  |  |  | 44 | 3 |  |  |  |  |
| *VEE103* | 42 | 2 |  |  |  |  | 61 | 3 |  |  |  |  |
| *VEE104* |  |  | 33 | 2 |  |  |  |  | 35 | 2 |  |  |
| *VEE110* | 35 | 2 | 35 | 2 |  |  | 14 | 1 |  |  | 35 | 2 |
| *VEE125* |  |  |  |  |  |  |  |  |  |  |  |  |
| *VEE135* |  |  | 18 | 1 |  |  | 15 | 1 |  |  | 18 | 1 |
| *VEM110 (electronics)* |  |  |  |  |  |  |  |  |  |  |  |  |

* *Students enrolled in VSP121 consisted of EET and CE majors*
* *Students enrolled in VEE110 consisted of EET and BT majors*
* *Students enrolled in VEM110 consisted of EET and CE majors*

*CE – Certificate of Achievement in Construction Electricity**BT – Associate of Applied Arts Science Degree in Building Technology, majoring in construction electricity* |
|  **Program Faculty** |
| This section reports the faculty of the program, including full-time and part-time faculty. The degrees held and rank are provided for the full-time and part-time faculty. Finally, provide the faculty student ratio for the program. |
|

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| --- | --- | --- |
| **Instructor** | **Background** | **Courses taught** |
| *Gardner Edgar**Full-time instructor/T&T Chair* | BS in Electronic TechnologyTexas State University at San Marcos | VSP121, VEE100, VEE103, VEE104, VEE110, VEE125, VEE135 |
| *Nelchor Permitez**Full-time instructor/Program Supervisor for TT & ET* |  | VEE100, VEE135 |
| *Cirilo Recana**Full-time instructor/Electrical*  |  | VEE100, VEE110, VEM110 |
| *Romino Victor**Full-time instructor/Electrical* |  | VSP121, VEM110 |
| *Bradley Henry**Part-time Instructor* |  | VEE103 and VEE104 |
| *Phillip Radke**World Teach Volunteer* |  | VEE103, VEE125, VEE135 |
| *Mary Nolan**World Teach Volunteer* |  | VSP121 |

Part time instructors are needed to assist the two full-time instructors in effectively delivering or offering courses for three different cohorts – Certificate of Achievement in Electronic Engineering Technology, AAS Electronic Technology, and AAS Telecommunications.Faculty/student ratio |
|  **Program Indicators** |
| This section provides the data for analyzing the extent to which the program has achieved the established outcomes and criteria. This is the most important part of the program review. The data that will be collected and evaluated are the following: |
| Assessment of course student learning outcomes of program courses | * ***PSLO#1: Practice safety and occupational health procedures in the workplace.***Task name: Apply safety procedures when using electronic testing equipment.Task description: During practical exercises (using oscilloscope & frequency counter to measure voltage and frequency of an AC waveform), students were assessed on their performances.**Result: 28 out of 38 or 74% of students achieved a grade of 90% or better** Task name: Follow safety rules in the workshop or workplaceTask description: During practical exercises (circuit construction & analysis [bread-boarding] and NIDA experiments on AC/DC circuits) students are assessed on their performances by instructors**Result: 29 out of 38 or 76% of students achieved a grade of 90% or better** Task name: Use of personal protection equipment (PPE)Task description: During practical exercises (soldering and cable fabrication), students are assessed on the use of PPE as observed by instructors.**Result: 33 out of 38 or 87% of students achieved a grade of 90% or better**
* ***PSLO #2: Use electronic tools and test equipment competently***Task name: Use of testing equipment (digital & analog multi-meter)Task description: During practical exercises, students’ competencies are assessed by instructors**Result: 32 out of 40 students achieved a grade of 80% or better** Task name: Use of testing equipment (oscilloscope, function generator, frequency counter)Task description: During practical exercises, students’ competencies are assessed by instructors**Result: 9 out of 18 achieved a grade of 80% or better**
 |
| Assessment of program student learning outcomes | According to course level student learning outcomes reports, in summary:1. Students who failed or have difficulties to achieve SLOs are mostly due to poor reading comprehension, lack of studying, and absenteeism. All in all, approximately more than 70% of students meet the SLOs as intended in all courses.
2. Students are more motivate to be engaged in learning the lessons with hands-on skills.
3. Instructors proposed to incorporate more time on hands-on practice for the students.
4. Instructors proposed to increase the number and upgrade instructional equipment and materials for hands-on practice including soldering machines for surface-mount devices, more NIDA experiment cards, and testing equipment.
5. Instructors proposed to merge certain core courses to improve the delivery of program.
 |
| Program enrollment (historical enrollment patterns, student credits by major) | **Enrollment by Major & Credits by Major and program**

|  |  |  |  |
| --- | --- | --- | --- |
| Term | Enroll by Major | Credit by Major | Credit by Program |
| Fall 2012 | 32 | 317.5 | 474 |
| Spring 2013 | 20 | 171 | 291 |
| Fall 2013 | 14 | 121 | 461.5 |

* Data is provided by IRPO. Enrollment and credits have been decreasing.
* The recommendation (as mentioned above in the program history) of not admitting certificate-bound students based on COMET results contributed the cause of decreasing or low enrollment.

**Credits Enrolled, Attempted, and Earned (averages)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Term | Credit Enroll | Credit Attempted | Credit Earned | Term GPA |
| Fall 2012 | 9.9 | 8.4 | 7.0 | 1.86 |
| Spring 2013 | 9.7 | 8.5 | 7.2 | 1.71 |
| Fall 2013 | 9.8 | 9.0 | 7.2 | 1.87 |

* Data is provided by IRPO. Data is not based on individual campus but system-wide including Yap, Kosrae, and Pohnpei.
 |
| Average class size | **Program Sections, Enrollment Ratio, and Average Class Size (system-wide)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Term | Section | Enroll Max | Enroll | Enroll Ratio | Avg Class Size |
| Fall 2012 | 19 | 389 | 320 | 82.3% | 16 |
| Spring 2013 | 10 | 200 | 152 | 76% | 15.2 |
| Fall 2013 | 19 | 379 | 300 | 79.2% | 15.8 |

* Data is provided by IRPO. Data is based on all three campuses (Yap, Kosrae, and Pohnpei) that are currently offering the program.

**Program Sections, Total class enrollment, and Average Class Size (Pohnpei campus)**

|  |  |  |  |
| --- | --- | --- | --- |
| Term | Section | Enroll Total | Avg Class Size |
| Fall 2012 | 9 | 154 | 17.5 |
| Spring 2013 | 10 |  |  |
| Fall 2013 |  |  |  |

 |
| Course completion rate | Course Completion & Withdrawals (Major)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Major | Degree | Term | Students | ABCorP% | ABCDorP% | W% |
| Electronic Engineering Technology | CA | Fall 2011 | 278 | 63.7% | 72.3% | 14.0% |
| Electronic Engineering Technology | CA | Fall 2012 | 405 | 80.2% | 88.9% | 3.0% |
| Electronic Engineering Technology | CA | Fall 2013 | 226 | 64.6% | 74.3% | 5.8% |
| Electronic Engineering Technology | CA | Spring 2011 | 219 | 66.2% | 76.3% | 12.3% |
| Electronic Engineering Technology | CA | Spring 2012 | 260 | 66.2% | 77.3% | 6.9% |
| Electronic Engineering Technology | CA | Spring 2013 | 190 | 61.1% | 76.8% | 11.1% |

Date is provided by the office of IRPOCourse Completion & Withdrawals (Program)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Program | Term | Students | ABCorP% | ABCDorP% | W% |
| Electronic Engineering Technology (CA) | Fall 2011 | 331 | 79.2% | 89.4% | 3.0% |
| Electronic Engineering Technology (CA) | Fall 2012 | 347 | 76.7% | 83.9% | 5.8% |
| Electronic Engineering Technology (CA) | Fall 2013 | 322 | 76.4% | 84.5% | 5.6% |
| Electronic Engineering Technology (CA) | Spring 2011 | 194 | 81.4% | 85.6% | 6.7% |
| Electronic Engineering Technology (CA) | Spring 2012 | 181 | 72.4% | 85.1% | 2.2% |
| Electronic Engineering Technology (CA) | Spring 2013 | 160 | 78.8% | 92.5% | 3.1% |

Date is provided by the office of IRPO |
| Student persistence rate (semester to semester) | Persistence and Retention (new full time students)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Major Description | Degree | New Students FT 2011\_3 | Students 2012\_1 | Students 2012\_3 | Persistence Spring 2012 | Retention Fall 2012 |
| Electronic Engineering Technology | CA | 21 | 17 | 6 | 81.0% | 28.6% |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Major  | Degree | New FT Fall 2012 | Persisted Spring 2013 | Retained Fall 2013 | Persistence Spring 2013 | Retention Fall 2013 |
| Electronic Engineering Technology | CA | 16 | 14 | 8 | 87.5% | 50.0% |

Data is provided by the office of IRPO |
| Student retention rate (Fall-to-Fall for two-year programs; Fall-to-Spring for one-year programs) |  |
| Success rates on licensing or certification exams (CTE, TP, Nursing, etc) | N/A |
| Graduation rate based on yearly number | Based on instructor’s record, graduation rate or completion rate of the EET program is very minimum due to the following reason:* All students who completed the EET certificate program continue on to the AAS degree program. In doing so, these students did not apply to graduate when completing the EET certificate; therefore there is no record to show this.

Graduates

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Major | Degree | AY2010/11 | AY2011/12 | AY2012/13 |
| Electronic Engineering Technology | CA | 4 | 3 | 11 |

Graduate Rates

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Major | Degree | Cohort | New Full Students | Graduation Rate 100% | Graduation Rate 150% | Graduation Rate 200% |
| Electronic Engineering Technology | CA | Fall 2008 FT | 42 | 0.0% | 2.4% | 2.4% |
| Electronic Engineering Technology | CA | Fall 2009 FT | 27 | 0.0% | 22.2% | 37.0% |
| Electronic Engineering Technology | CA | Fall 2010 FT | 34 | 0.0% | 2.9% |   |

Date in the table above is provided by the office of IRPO |
| Students seat cost |

|  |  |  |  |
| --- | --- | --- | --- |
| **PROGRAM** | **Fall****2012** | **Spring 2013** | **Summer 2013** |
| Electronic Engineering Technology (Pohnpei) | 79 | 83 | 48 |
| Electronic Engineering Technology (Kosrae) | 48 | 76 | 28 |
| Electronic Engineering Technology (Yap) | 22 | 107 | 0 |

* Data is provided by IRPO.
 |
| Cost of duplicate or redundant courses, programs or services | VEE110 Discrete Devices I (3 credits) is currently utilized as one of the requirements for the AAS Building Technology program. |
| Students’ satisfaction rate | Based on a survey that was developed and issued out by the division, 25 students participated in the survey. Using four point Likert scale, students evaluated the course with the average 3.8 points and 4 points as being the highest. |
| Alumni data | All students who have completed the EET program are currently pursuing their AAS degree in either Electronic Technology (ET) or Telecommunications (TC). |
| Employment data and employer feedback (employer survey) | Some of the students who completed the EET program and continue into the ET and TC where enrolled in VEE250 Cooperative Education. The course provided the students the opportunity to gain employment skills. Students were placed at actual worksites to perform tasks as planned and to be monitored, supervised, and evaluated by actual worksite supervisors. Based on instructor’s record, out of 20 students, 11 students received 36 out of 40 points rating from site supervisors, 5 students received 34 out 40 points from site supervisors, 3 students received 30 out of 40 points from site supervisors, and only one student received points below the satisfactory level.   |
| Program added or cancelled at nearby regional institutions (PCC, GCC, Hawaii schools, UOG, CMI, NMC) | PCC offers a similar program entitled, Certificate of Achievement in General Electronics, which has a total of 60 credits. Coursework included basic electronics, analog & digital electronics, circuit applications, microcontrollers, video & audio systems, PC maintenance, and Internship. GCC offers a similar certificate program entitled, Secondary CTE Electronic Program – this is a 2-plus-2 program that begins enrolling students at the high school level and progresses into GCC where they complete the program. Coursework included electronics, PC essentials, and networking. The program also serves as a stepping stone for their degree programs in Computer Networking and System TechnologyHonolulu Community College (HCC) also offers a similar certificate program called Computing Electronic Networking Technology (CENT). The program is designed to provide the student with a mixture of knowledge and hands-on training with an emphasis on preparing students for entry-level employment in the ICT industry. The program also serves as a stepping for the CENT degree program.UOG offers professional development training program in Computer Certification courses.CMI has no electronics or other similar certificate programsNMC also has no electronics or other similar certificate programs. |
| Transfer rate | EET program serves as the first year program for the AAS in Electronic Technology (ET) and Telecommunication (TC) If not all, most students who successfully completed the EET certificate program advance to the AAS as a ET or TC major. |
|  **Analysis** |
| **Findings**This section provides discussion of information discovered as a result of the evaluation such as problems or concerns with the program and what part of the program is working well and meeting expectation. | 1. Full time instructors that are currently teaching EET courses are also responsible in teaching the AAS Telecommunication and Electronic Technology programs. Every semester part-time instructors/volunteer instructors are being utilized to assist in teaching courses to alleviate the teaching loads of the two full time instructors. Three full-time instructors are needed to accommodate the three different cohorts as mentioned above in Program Faculty section.2. PSLO #1 – most students are meeting this.PSLO #2 – most students are satisfactorily competent in using hand tools. But most students are struggling in mastering the use of electronic tools and equipment. The time students spent on practicing in using the test equipment is limited mainly due to the sharing of a few workstations among many students. Also, students need more opportunity to put skills into actual practice.3. Based on course level assessment reports, most students who failed to achieve SLOs are mostly due to poor reading level to comprehend reading materials and lectures, unmotivated to study or learning, and problem with attendance.4. Enrollment in the EET has been decreasing. One of the causes is due to the recommendation of not allowing certificate-bound into the program, which began implementing in 2012.Graduation or completion rate for the program is low. Students were not encouraged or advised to apply for graduation upon completion of the program. Perhaps, students did not see the point in applying for graduation since they will continue into the AAS program.Also, sequencing of courses and student advisement could be contributed to this finding. Some students preferred to put off courses like SC130 until the end to complete it and SC130 is a requirement for the EET program. And when students follow this sequence, they completed both requirements for EET and ET or TC at their last terms. |
| **Recommendations**This section provides recommendations from the program on what to do to improve or enhance the quality of program and course learning outcomes as well as program goals and objectives. This section should also include suggestions that describe how the program might be able to create opportunities for a better program in the future. Some examples are exploring alternate delivery mechanisms, forming external partnerships, or realigning with other programs. | 1. **Hire a full-time instructor** to join the two existing instructors to effectively deliver courses in the EET, ET, and TC programs to eliminate or minimize teaching overloads and to ensure students are in the best course sequence to complete requirements in the shortest time possible.
2. PSLO #1 – Continue the effort of teaching students industrial safety with required teaching materials. Encourage to wear the proper attire during hands-on practice and to purchase required toolkit.

**Recommend** Bookstore to continue in assisting of selling student toolkit required for the EET program. It was recommended to include in the toolkit set a pair of safety/working shoes.PSLO #2 – Purchase additional electronic testing equipment such as digital oscilloscopes, function generators, and NIDA experiment cards. Currently, we have equipment and materials to form 4 workstations that would accommodate 15 or 16 students, which would have 3 or 4 students at each workstation. If the enrollment is 20, then there will be 5 students at each workstation. **Recommend** to purchase the following instructional equipment and materials:* + NIDA experiment cards – DC, AC, Analog, and Digital (4 sets of each)
	+ Digital Oscilloscope (4 each) and Function generator (4 each)

And to address the need of more time to put skills into practice, it is **recommended** that instructors will utilize proposed community servicing to provide students additional opportunity to put skills into actual practice.1. The need of acquiring the right kind of students into the program, students who are academically prepared and motivated, it is recommended to develop and implement a recruiting strategy to identify potential high school students at early stage during the 11th grade of high school. It has been proposed that the EET will be working closely with the TRIO programs (UB, ETSP, and Gear-Up) to recruit potential students for fall 2015 and on.

Also, EET program will try to recruit non-traditional students by offering evening courses.1. Recommendation for #3 will also address the current low graduation rate of the program. Additionally, it is also recommended that the EET program could join other degree programs to recruit potential programs outside of Pohnpei or FSM, possibly Chuuk, RMI, and CNMI since this type of program is not available their sites or local colleges.

And to help improve the sequencing and scheduling of courses and ensuring students completed all program requirements in a timely fashion, it is recommended the program will modify and develop new courses to replace old courses.Replace VSP121, VEE100, and VEM110 with one courseReplace VEE110 and VEE125 with one courseCurrently, EET program is working on a program modification request.  |
|  |  |

*Form is newly revised. Previous Program Reviews are available at* [*http://wiki.comfsm.fm/Academic\_Programs*](http://wiki.comfsm.fm/Academic_Programs)

*Micronesian Studies is a very good example. Program review checklist is on the next page.*