

**College of Micronesia-FSM
Program Modification Request**

Program:

Refrigeration & Air Conditioning (RAC)
Certificate of Achievement

Initiator:

Technology & Trades (T&T) Division
(Bertoldo Esteban, RAC Instructor)

Suggested revisions and justifications for each:

1. Change the program mission, description, and goals to align with new developments in the field, and proposed changes described below, and to shift focus to the development of skilled manpower.
2. Revise the PSLOs and curriculum (CSLOs, course structure, course credits) to enhance hands-on training in order to provide highly skilled graduates for the workforce and ensure that the program is up to date with the rapid changes in the trade. The proposed revisions will also ensure implementation of best practices in the field.

There are currently six PSLOs for the RAC program. It is proposed to reduce the number of PSLOs to four and to change some of the wordings so that the program outcomes can be effectively linked to the proposed curriculum and assessed accordingly.

The existing program curriculum has been running for nine (9) years and is in dire need of updating. Based on the 2014 program review and assessment results we have recommended improvement plans that include upgrading the curriculum for competencies and standards in refrigeration and air conditioning.

In terms of course structure, it is proposed to increase laboratory/practical time to 15 hours per week and five (5) hours for lecture. The plan is to incorporate the current technical courses, VEM 105 Basic Electricity for AC, VEM 110 Workshop Fabrication/Hand Power Tool Skills, and VEM 113 Refrigeration I into one 10 credit course with 15 hours for hands-on practice and five hours lecture. The same is planned for the remaining technical courses, including VEM111 Electrical Wiring I, VEM114 Refrigeration II, and VWE115 General Welding. Students in the program can use the extended hours to perform practical maintenance services for the College and the community to enhance employment skills as well as to promote the program through the proposed Community Appliance Servicing project.

Currently the courses require nine (9) hours of lecture and three (3) hours of laboratory time. Three (3) hours of laboratory time has proven inadequate to fully equip graduates with the knowledge and skills required by the labor market. [Course level assessment reports](#) indicated that the students can pass RAC courses at a level below mastery level because of the limited time for practical exercises. As a result we recommended increasing the laboratory hours to meet the skills needed by the employer.)

The norm for courses in trades is 30% theory and 70% practical training to produce a skilled worker in the trade. Longer hours of [practical training](#) equip the student with the skills needed for the workforce. Another support to this proposed change is the success of the [Honolulu Community College-RAC program](#) which comes from the extensive number of hours allocated for hands-on exercises.

Restructuring the existing courses similar to Honolulu Community College RAC courses can improve the quality of the program and can assure local employers that graduates have the capacity to work in their field of specialization.

Employment data from the 2014 program review showed more than 60% of graduates were employed in fields unrelated to refrigeration and air conditioning. The major reason for the

employment rate is due to the marginal practical skills graduates acquired from the current program.

It is also proposed to replace MS 104 Technical Math I and MS 106 Technical Math II with MS 094 Introduction to Technical Math. This change will enable students to complete the program requirements on a timely manner. Furthermore, MS 094 is the math general education requirement for all the T&T terminal certificate programs.

It is further proposed to change the existing coding number for all refrigeration technical courses from Vocational Education Mechanics (VEM) to Refrigeration and Air Conditioning (RAC) to avoid confusion and to separate the program course offerings from under the Construction Electricity program. This proposed change will again bring more focus to the program.

3. Restructure the program to comply with the new policy on best practices in refrigeration and air conditioning mandated by the Montreal Protocol and as stipulated in the MOU between the FSM and the College. The Office of Emergency and Environment Management (OEEM) is in-charge of the implementation of regulations regarding the proper handling of ozone depleting substances (ODS) here in FSM. To implement the Montreal Protocol in the Federated States of Micronesia, the OEEM and COM-FSM have signed an MOU that signifies the joint effort of both agencies in providing the best practices in refrigeration and air conditioning training to the nation's current and future technicians in the field.

One important change in the trade is the phase out plan for the hydrochloroflourocarbon (HCFC) gases, which is primarily used in the current air conditioning systems as a cooling agent and to replace it with environmental friendly alternatives. In order to have a successful program in refrigeration and air conditioning services and to support future RAC certification in the FSM the program must follow such practices and standards as prescribed in the Montreal Protocol.

Additional support for this proposal can be found in the RAC technicians' training reports from Kosrae, Yap, and Chuuk at the link below.

Note: Link to detailed information:

http://wiki.comfsm.fm/Academic_Programs/Refrigeration_and_AC

Summary of consultation within the division:

T&T Division Chair and CTE Director have reviewed this proposal with the program instructor and they are in full support of the proposed changes to the program.

Summary of consultation with other campuses where this program is offered:

RAC program is not available or offered at any other campuses except Pohnpei campus.

Division Chair/Instructional Coordinator/Director
signature:

Date submitted to CAC:

April 8, 2015

Decision reached by CAC: Approved
 Disapproved

4/27/15

If not approved, reasons for disapproval:	
CAC Chair signature: <i>Susan J. Moses</i>	Date submitted to VPIA: <i>5/4/15</i>
VPIA signature: <i>Loren Simon</i>	Date submitted to EC: <i>May 15, 15</i>
EC Chair signature: <i>John M. Blair</i>	Date signed/or date submitted for BOR approval, if required: <i>7/9/15</i>
	Date approved by BOR, if required: