



OAKLAND
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ENVIRONMENTAL SYSTEMS TECHNOLOGY

ADVISORY COMMITTEE

November 7, 1997

Present: Matthew R. Daly, Maintenance Systems Supervisor, OCC
Rob Featherstone, Paraprofessional, OCC
E. John Geist, Honeywell, Inc.
Fred M. Gerow, SunSpace Energy Systems
James A. Gibbons, St. Joseph Mercy Hospital
James Michael Hudgins, Student, OCC
Shelley Kaye, Workforce Development Services, OCC
Dr. Carlos Olivarez, Dean, Academic and Student Services, OCC
Larry Pennefather, Faculty, OCC
Michael D. Portwood, Consumers Energy
Mark Riley, City of Troy
Jesse Riojas, Oakland Technical Center Northwest
Dr. Debra Rowe, Faculty, OCC
Ruth Springer, Secretary, OCC
David J. Tetreau, Landis & Staefa

Report on Trip to Chicago

Dr. Debra Rowe, Mr. Larry Pennefather, and Mr. Rob Featherstone reported on their recent trip to Chicago to visit Landis & Staefa. Landis & Staefa is a multinational company which manufactures controls for heating and cooling systems. It is also the company with which OCC has contracted to put equipment into OCC's buildings. While at Chicago, they met with Landis & Staefa's Director of Employment. They were given the job descriptions of people Landis & Staefa would like to hire. The starting salary is \$28,000 a year, and employees can move up quickly. Of the six items on the job descriptions, only one is technical. The other five all have to do with such things as interpersonal skills, communication skills, and character.

They also toured the labs which are used to train personnel in building automation and direct digital controls. The labs include miniature versions of the actual systems, so students can work on the equipment and see what really happens. They were given the plans that show how to build those training systems, so similar equipment can be constructed and used here at OCC. Mr. Pennefather and Mr. Featherstone could build the equipment using Landis & Staefa's design.

It was also suggested that Mr. Pennefather and Mr. Featherstone could benefit from attending training at the Landis & Staefa facility in Chicago.

Progress Report on Advisory Committee Recommendations

The minutes of the Environmental Systems Technology Advisory Committee meeting held on April 11, 1997, were reviewed and approved as written. The minutes of the follow-up meetings of OCC members of the advisory committee held on July 17 and August 6, 1997, were reviewed, and a progress report was given on each committee recommendation, as follows:

- 1. That a co-op class be developed for inclusion in the Environmental Systems Program. Another possible way of providing students with on-the-job experience could be through an affiliation agreement with a large company, such as OCC's medical programs have with hospitals.**

Dr. Rowe provided the group with copies of a list of proposed curriculum revisions (see attachment). She reported that she and Mr. Pennefather are still working on the curriculum revisions. They expect to take their proposal to the Campus Curriculum Committee during Winter 1998. The IND co-op class will be added to all options as a recommended elective.

- 2. That OCC obtain the necessary equipment to teach AET 251, Direct Digital Controls.**

Mr. Pennefather mentioned a potential adjunct instructor who could teach AET 251. He works for General Motors on Landis systems. Dr. Rowe has met with him regarding course content and lab equipment. They have a better idea now as to what equipment the available money should be spent on before the December spending deadline.

- 3. That OCC take the necessary steps to offer TER 141, Air Conditioning Systems Testing, Adjustment and Balancing.**

Dr. Rowe reported that after discussion with people in industry it has been decided to add an air balancing module to TER 139, Heating, Ventilation, Air Conditioning and Refrigeration Design II,

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rather than offering a separate course, TER 141. She and Mr. Pennefather will be talking with Mr. Tony DeAlbuquerque, the course instructor, about this possibility.

Dr. Rowe also mentioned that they may be adding an air conditioning troubleshooting course to the program. Perhaps the balancing piece could be included in this new course.

- 4. That OCC seek to obtain the high tech lab equipment needed by the program through partnerships with companies.**

Dr. Rowe reported that Landis & Staefa is working with the College to help them obtain equipment. Dr. Rowe and Mr. Pennefather will then be able to go to others in the industry and ask if they would like to assist OCC as Landis & Staefa has.

A subcommittee has met twice to assist in determining what equipment should be obtained for the lab.

- 5. That Mr. Pennefather be given release time to develop curriculum, contact companies about obtaining equipment, and take training in the advanced systems which need to be taught.**

Mr. Pennefather and Dr. Rowe both have release time now and are working to improve the program in a number of areas.

- 6. That Mr. Pennefather attempt to find possible instructors from industry to teach the most advanced classes, such as AET 251 and TER 141.**

Dr. Rowe reported that TER 141 will become a module of another course, which will be taught by its current adjunct instructor. Lab equipment must be obtained for AET 251. An instructor is available, and as soon as the lab equipment is in place, the course will be offered.

- 7. That OCC attempt to arrange for clinicals, such as are used in the nursing field, in which an entire class could go into the field and use the equipment.**

Mr. Pennefather reported that he recently took a class to Beaumont Hospital to see the systems in use there. He and Dr. Rowe are looking into how to add more of this type of experience to the program. This recommendation has been completed.

- 8. That OCC continue to train students on oil-based equipment.**

This is an ongoing part of the curriculum. This recommendation has been completed, and will not appear in future minutes.

9. That a sheet metal/ductwork course be included in the curriculum.

Dr. Rowe reported that Mr. Jesse Riojas has begun to develop this course. She and Mr. Pennefather will be meeting with him again to identify exactly what will be covered in the class, which may include blueprint reading. Dr. Olivarez has agreed that room A101 can be used for the ductwork class, with the assumption that the room would continue to be available for multipurpose usage.

10. That OCC take steps to expand the Environmental Systems Lab to have more space for needed equipment. That this expansion be made a part of the master plan currently being created for the Auburn Hills Campus. That a new building be requested for the Environmental Systems Program. If it is not possible to have a new building, that additional balcony space be added to the lab.

The group discussed the possibility of adding a second floor or a balcony to the current lab. Dr. Olivarez stated that he would find out when the architect would be on campus again, so that Mr. Pennefather and Dr. Rowe can meet with him about this. If the architect says it would not be possible to add a second floor or balcony, then other possibilities will need to be considered for adding additional lab space.

Dr. Rowe expressed a concern that it is difficult to move forward on acquiring lab equipment and instructors if we do not know where the classes will be meeting. There is a need for cabinets in which to store equipment, so the room could be used for other purposes as well.

Dr. Olivarez reported that there would be a meeting the following Tuesday to make decisions about furniture requests. More requests have been submitted than the available money can cover, so half will be done this year and half next year. The request for Environmental Systems should be approved, since it is in A Building, which has the oldest furniture. Dr. Olivarez will work with Mr. Featherstone on this.

Dr. Rowe commented that, if it is not possible to add a second floor to the current lab space, then an additional room will be needed. She wondered whether it would be possible to obtain another room after the newly renovated F Building has been occupied. Dr. Olivarez responded that he and Mr. Pennefather are on record requesting certain rooms for this purpose. However, F Building is not ready for occupancy, and decisions have not yet been made about the move or how rooms might be used after the move.

Dr. Olivarez reported that he has e-mailed Dr. Martha Smydra, Royal Oak/Southfield Campus President, a couple of times about the possibility of putting equipment needed to teach the introductory Environmental Systems classes in the Alternate Energies Lab or in another space at Royal Oak or Southfield, but has received no response. He will e-mail her again.

- 11. That OCC attempt to become involved in revenue producing programs and other activities which might also make employers more aware of the College, such as: offering professional development seminars; becoming a certification test site through ACCA; becoming a site for meetings of ASHRAE.**

This will be considered after the other changes which are currently in process have been completed.

- 12. That any needed curriculum adjustments be made to ensure that students have the basic skills in math, English, and technical support which they need to be successful in the Environmental Systems Program. This could include requiring students to pass a proficiency test or take the needed classes outside the program requirements.**

Dr. Rowe reported that, in the proposed curriculum revisions for the HVACR Technician and Advanced HVACR Technician Options, the math requirement will be: "TEM 101 or MAT 105 or higher." The main trainer at Landis & Staefa has agreed that this is the level of math that is needed by people they might hire. About 60 percent of students who take College Algebra do not receive a passing grade. Historically, the program has lost students when they are required to take a standard math class. When students take an applied math class, they are able to see how it applies to their field of study, and they are more apt to continue their studies. The trainer at Landis & Staefa agreed that students should be required to take applied math.

Mr. Fred Gerow commented that everything in the field is based on math and science, so students must have a good understanding of these subjects. It is true that some students can only be successful at a lower level of math. However, for those who plan to continue their studies at Ferris or another four-year university, higher math standards should be required. Math is becoming more and more critical to success in the field. If we lower the math standards in order to keep students, we may not be really providing service to the community as we should.

Dr. Rowe responded that we are not lowering math standards to keep more people in the program. We are trying to have math requirements that match what students will need in the field. If students plan to continue their studies in a 2+2 program to become design engineers, they will follow a specific 2+2 track with recommended math and science courses equivalent to what Ferris State University demands. But this is not necessary in the regular HVACR Technician Option.

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Dr. Olivarez and Ms. Shelley Kaye spoke about a program called Work Keys which works with a particular company to determine what levels of skill in each subject are required for each job. Then applicants and employees can be tested to determine what specific skills they need to learn to be fully qualified for a particular job. Perhaps Work Keys could be used to determine what math courses are needed for the Environmental Systems Program Options.

Mr. Gerow commented that he has worked with co-op students whose math skills were low. He doesn't know how they did the necessary heat calculations. OCC needs to provide students with a strong foundation in math and science so they are not handicapped in the years ahead as they pursue their careers.

Dr. Rowe responded that OCC has good applied physics and math classes. Students also do lots of calculations in the Environmental Systems classes themselves. MAT 105, Preparation for Algebra, or TEM 101, Basic Mathematics, would provide the students with the math skills they need to be successful in this program. Students who have good math skills from high school can take a more advanced math class if they wish. There is a need for dialogue between the Math Department and the Technology Department so students can take applied math classes and receive math credit for them.

Mr. Mike Portwood commented that, when he returned to school as an adult, he took some math classes that did not apply to what he was doing in his field of study. He believes that it helps to see how the math applies to your career field.

Dr. Rowe asked whether, if we create a 2+2 articulation agreement with Ferris, we then must create another degree option with the courses required by Ferris, or whether we can put a notice in the catalog that students desiring to transfer to Ferris should see a counselor about transfer requirements. Dr. Olivarez responded that we would need a separate track for students to follow if they plan to transfer to Ferris.

13. That OCC update staff and curriculum to address the need for instruction in air quality, building automation, and energy management control strategies.

Dr. Rowe reported that this is being done.

14. That steps be taken to include in the curriculum instruction in Business Communication.

15. That steps be taken to include in the curriculum instruction in interpersonal skills, problem solving, and customer relations

Dr. Rowe reported that Ms. Suba Subbarao has developed a course which addresses much of this subject matter. She is attempting to get it approved through OCC's curriculum process. If this course is approved, it will be included in the proposed new Environmental Systems curriculum.

- 16. That a bulletin board be placed in the Environmental Systems Lab to be used for posting job openings.**

Dr. Rowe reported that she has a bulletin board now in her area at the Royal Oak Campus. Mr. Pennefather is using a refrigerator to post job openings. Mr. Daly stated that he will deliver a bulletin board to the Environmental Systems Lab tomorrow.

- 17. That, when the Placement Office receives a job posting in the area of Environmental Systems, a copy be sent to Mr. Pennefather to be posted in the Environmental Systems Lab and to Dr. Rowe to be posted in the Alternate Energies Lab at the Royal Oak Campus. That Mr. Pennefather work with Ms. Mamros on what job titles should be included among those sent to him.**

Mr. Pennefather reported that he is not receiving anything from the Placement Office. Dr. Olivarez will follow up on this with Mr. Willie Lloyd, OCC Director of Placement and Cooperative Education.

- 18. That the jobs currently included under MOIS code 10 in the Placement Office job postings be divided into subcategories to make it easier for students to find jobs in their specific field.**

- 19. That the Placement Office put job postings on e-mail so students would be able to access them using designated computers.**

Dr. Olivarez is working on these recommendations with Mr. Lloyd.

- 20. That employers be invited into the classroom to present Environmental Systems job openings to the students.**

Ms. Kaye commented that she has contacts with employers who would be happy to give presentations. Dr. Rowe mentioned that she is not sure she would want to give up class time which is needed for instruction for that purpose. She suggested that a job description could be put together and handed out to students. Flyers could be put up for students to see. Perhaps something could be done at the end of class.

Mr. James Michael Hudgins suggested that an announcement could be made to students that an employer would be there before the next class, so they could come early to meet with them. Mr. Keith Gibson mentioned that he had done a presentation at the end of Ms. Kaye's classes.

21. That the Auburn Hills Campus consider hosting a career fair.

Dr. Olivarez pointed out that we have an annual Co-op Day, when employers come to campus to interview potential co-op students. This has been very successful. He asked whether we are interested in having a general career fair, or something that is geared to a certain field.

Dr. Rowe commented that presentations in classes might be more appropriate, at times when companies need employees.

Mr. Gerow suggested that a general career fair that could be organized by the Placement Office would be good. Dr. Olivarez responded that this is not the only program that would like to have this done. Dr. Olivarez suggested that he could organize a meeting of Mr. Lloyd with people in the Technology Department whose programs would be interested in this.

22. That a mailing be sent to companies once a semester including information about the Environmental Systems Program and the possibility of sending employees to OCC for retraining. Information should also be included about how to post job openings, with a form the company could return with job information.

A brochure has been created to advertise the program. Dr. Rowe reported that they are trying to put together a targeted piece for contractors. She distributed copies of a proposed marketing plan for the program (see attachment). She asked for feedback from the group regarding numbers 1-11.

Mr. Pennefather commented that, on a recent survey of Environmental Systems students, no one said they came to take classes because they had picked up a flyer or brochure.

Mr. Mark Riley suggested that SMACA might be interested in the courses offered at OCC. He has non-union personnel that work for them. He also suggested the Michigan ACA.

Mr. David Tetreau suggested BOMA and BEMA, stating that the building engineers and building operators are the people who do the hiring.

Dr. Rowe stated that she wants employers to know about OCC and give flyers to applicants who are not qualified for their job openings. She needs the addresses and phone numbers of these organizations that we want to target. She requested that committee members give her whatever

information they might have about these organizations. She particularly needs contact names and phone numbers.

Mr. Gibson suggested that information be sent to veterans affairs organizations which try to help veterans get started on good career paths.

- 23. That a Rolodex with the names of companies and how to contact them be made available to students in the Environmental Systems Lab.**

This recommendation has been completed. A Rolodex with this information is being used to give referrals to qualified students. Mr. Featherstone has also put the information on the computer.

- 24. That Environmental Systems Program graduates who have become successful in the field be brought in to speak to students, so students are aware that there are good jobs available in the field.**

Mr. Pennefather would like to do this, but has not yet had the time.

- 25. That the advisory committee be provided with copies of any proposed curriculum changes so that members may review them and provide input before any internal balloting takes place.**

Dr. Rowe requested that the group consider the sheet of proposed curriculum revisions (see attachment) and give any suggestions they might have. She explained that, instead of offering just one certificate, there will be three certificates, in Heating, Cooling, and Refrigeration. This will allow students to get just one certificate quickly and get a job in that area. Then they can continue to take classes and get a degree later. Curriculum revision will include the changes listed on the sheet, the three certificates, and the 2+2 curriculum for transfer to Ferris.

The advisory committee reviewed and expressed their support for the proposed curriculum changes.

- 26. That instructors inject into every course the concept of being nice to the customer. That OCC consider doing a staff development initiative for all Technology Department instructors to teach them how to introduce this concept into their classes.**

Dr. Rowe reported that Mr. Pennefather sent a memo to all the adjunct instructors in their area requesting that they emphasize customer relations in their instruction. The College is currently encouraging all employees to attend Advanced Connections workshops which focus on customer service to both internal and external customers of the College. Perhaps there could be a staff development day for all instructors, not just those in the Technology Department, which would focus

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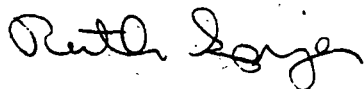
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on how to model and communicate the concepts of Advanced Connections to students in the classroom.

27. That a cross-referenced file of mailing lists which could be used in mailings to companies be maintained by Ms. Ruth Springer in the Technology Department office.

Dr. Rowe requested again that the members share with her any mailing lists they may have. It should be easier for members who know people in the various associations to obtain their mailing lists, than it would be for us to just call and ask for them.

Respectfully submitted,



Ruth Springer

(adv97:ter1107.min)

Environmental Systems Technology Curriculum Revisions - Fall, 1997

HVACR Technician degree

Add Air Conditioning Troubleshooting for 2? credits

Add Customer/ Human Relations and Problem Solving Skills class, perhaps as a revision of ENG 135 Business Communications? Meet with English faculty to pursue this

Change math requirement to "TEM 101 or MAT 105 or higher"

Add Duct Layout and Fabrication for 2 credits

Delete ELT 101 Basic Electricity and create/add TER 140 - Basic Principles of HVACR controls

Delete TER 180

Insert IND coop class as a recommended elective to all degrees

Delete IND 100 from all degrees

Have Tony DeAlbuquerque develop a module on air balancing for possible inclusion in the HVAC Design II course (1c)

HVACR Advanced Technician

Delete APD 856

Change CIS requirement to CIS 105 and add "or permission of instructor" to allow for students to place out of the course (Perhaps just include as a prerequisite to AET DDC class?)

Delete AET 242.4 and TER 141

Insert IND coop class as a recommended elective

Delete ELT 101 and create/add TER 140 - Basic Principles of HVACR controls

Delete MAT 115 requirement and add "TEM 101 or MAT 105 or higher"

Put duct class in Atma's room

ENVIRONMENTAL SYSTEMS TECHNOLOGY - MARKETING PLAN

Target Markets and method of marketing:

1. Wholesalers - stack of flyers for their counter
2. Contractors - 1 letter and brochures/flyers to owner
3. Hospitals - 5 flyers to head of maintenance
4. School Districts/ Head of Maintenance - 1 letter and handful of brochures
5. Apartment Complexes - Property Managers - 1 letter and handful of brochures
6. APPA - Flyers at their conference, article in newsletter
7. ACCA - Flyers at their conference, article in newsletter
8. ASHRAE - Flyers at their conference, article in newsletter
9. Builder's Association of Southeast Michigan - Flyers at their conference, article in newsletter
10. Consumers/ Homeowners/ Do-it-yourselfers - Press Releases, AET articles in newspapers
11. Booth at annual Home Builders Show - flyers and brochures and informational articles at booth once/yr.
12. Put on internet and OCC home page with a counter to check the number of visits.

Two major mailings per year - delivered mid November and mid July

Budget Items:

Flyer costs	
Brochure costs	\$300/ 1000
Mailing costs	\$120/ 1000

Timeline for #1-5 above:

Mid October - bulk mailing completed

First week in November - follow-up phone calls to 1-5 above to answer their questions, assess their needs (questionnaire/script to be developed for this) and ask

they distribute the info (and invite them to visit the program?)

By March 31st - Revise flyer and brochure for next mailing

April - Print new flyer and brochure

May/June - complete bulk mailing

Mid July - delivery

Tasks and Timeline for #6-9 above

Dependent on conference and newsletter schedules. Try to make newsletter articles match mid October and mid July dates or slightly before.

Larry Pennefather will contact APPA, ACCA and ASHRAE and Debra Rowe will contact Builders Associations and AIA to establish rapport and get conference and newsletter schedules. Schedule writing of articles and mailings accordingly.

Research Builder's Show Schedule and Fees

Press Releases and Newspaper Articles: Ongoing, by D.Rowe and G. Cartsonis at DO

Rotate names to be used for mailings. Survey students for feedback about how they heard about the program in order to identify and target our best referral potentials.



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