



OAKLAND
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COMPUTER AIDED DESIGN AND DRAFTING TECHNOLOGY

ADVISORY COMMITTEE MEETING

December 11, 1998

Members Present:

Dick Biermacher, DaimlerChrysler
Barbara Dursum, Oakland Schools
Jeff Figa, Continental TEVES
Thomas J. Kudzia, DaimlerChrysler
Q. W. (Buz) Nowicki, IBM
Dale O. Orchard, Rochester Adams High School
Erich Senft, General Motors Truck Group
Christopher C. Victor, United Technologies Automotive

Guests Present:

Dave Gorski, Dassault Systems USA
Deborah Laurie, Michicore Technologies

OCC Ex Officio Members Present:

Sharon L. Blackman, Ed.D., Dean of Technology
Joe Burdzinski, Workforce Development Services
Phillip Crockett, Workforce Development Services
Sally Kalson, Coordinator of Cooperative Education
Tahir Khan, Faculty, Technology Department Chair
Charlie Kurzer, Counselor
Tom Sawasky, Faculty
Ruth Springer, Secretary

Introductions and Review of Minutes

Dr. Sharon Blackman, OCC's new Dean of Technology, introduced herself and welcomed the group. She invited those present to introduce themselves.

The minutes of the Computer Aided Design and Drafting Technology Advisory Committee meeting held on November 13, 1997, were reviewed and approved as written.

Review of Minutes of Follow-Up Meeting

The group reviewed the minutes of the follow-up meeting of OCC staff members held on April 2, 1998. Dr. Blackman pointed out that several recommendations have been completed and will not appear in the minutes in the future. Several items were not approved, and an explanation for those actions may be found in the column on the right. Dr. Blackman asked the group to review the items that were not approved and make comments or state any concerns they might have.

9. That additional instruction in finite element modeling be added to the Computer Aided Engineering Technology Option.

Mr. Erich Senft stated that he agrees with the statement that it is not possible to teach more material in this area in addition to what is already being taught in CAD 216, Finite Element Modeling, because of the limited math background of the students. He suggested that it might be good to include instruction in organizing data. Mr. Tom Kudzia agreed, and suggested that instruction in how to organize data needs to be included in all the basic CATIA classes.

Dr. Blackman stated that we need to give the committee the course objectives and competencies for each course, so members can see what is being taught in each.

Mr. Jeff Figa asked about the meaning of the notation "Not Approved" after certain recommendations. Dr. Blackman explained that this means the recommendation will be removed from the list. However, in this case, Mr. Senft's point will be noted as another recommendation.

Dr. Blackman reported that a recent study shows that it takes students an average of seven and a half years to complete a two-year associate degree at OCC. We need to look at how we are offering our courses. We do not want to lower the quality of what we offer, but perhaps it could be offered in a different way. An average two-year associate degree is 62-72 credit hours. The currently proposed revision to the CAD Auto Body Design Option has 84 credits. One way that OCC measures institutional effectiveness is by the number of students who graduate from a program. We need to consider other types of exit points, such as certificates of competencies, which could provide students with natural progression points to exit into industry, and then return later to take more courses.

Mr. Senft stressed the importance of teaching the newest methods of working with data. Technology is moving very fast, and OCC needs to be teaching the new methods rather than the old ways.

10. That a class in design simulation be added to the Computer Aided Engineering Technology Option.

Mr. Chris Victor noted that the reason this recommendation was not approved was because OCC has not been able to obtain sufficient licenses for Deneb's design simulation software. He

suggested that other software is available now which could be used rather than Deneb. So much technology is in use that there is almost a need for a set of basic classes and a set of advanced classes.

Mr. Tahir Khan addressed a question to Mr. Dave Gorski: Since OCC is a CATIA licensed site, and since Deneb has been purchased by Dassault, would it be possible for us to get more licenses for Deneb software? Mr. Gorski responded that Deneb is still operating as a separate entity, so OCC's CATIA licenses would have no effect on what Deneb might do. Mr. Gorski offered to talk to Mr. Victor Rhoder, the educational contact for Deneb, about the possibility of OCC obtaining more licenses.

Mr. Victor suggested that OCC consider the possibility of offering instruction in Moldflow software.

Mr. Khan reported that OCC has a tentative agreement with Think CAD Blue in California to use their online software and tutorials at no charge. He has been given the name of someone at DaimlerChrysler to contact in regard to trying to get modules from them to incorporate into our courses here. Our students would then be using the same type of materials used for training at DaimlerChrysler. Mr. Khan will continue to investigate this possibility.

Update on Design and Manufacturing Alliance

Ms. Barbara Dursum reported that the county has received two million dollars from the state to continue the school-to-work initiative begun as a five-year federal initiative.

Dr. Blackman reported that the Design and Manufacturing Alliance (DMA) is a consortium of representatives of business and industry, OCC, Macomb Community College, and Mott Community College. They are attempting to improve the design and manufacturing programs in our counties by coming to agreement about what needs to be offered in classes from the secondary to post-secondary level. This group brought area CAD instructors together for a staff development day at OCC on November 10, 1998. This event was attended by 75 instructors. Dr. Blackman distributed copies of a DMA database which shows a variety of information about the CAD classes being offered in area high schools. This information was compiled from responses to a survey distributed at the November 10 meeting. Manuals and information were printed and given to instructors at the meeting. These materials were designed to help instructors teach the skills which industry says the students need. A follow-up event will take place on March 9, 1999. At that time instructors will be asked if they are using these materials in their classes. The November 10 event was encouraging, as it showed that instructors are willing to come together and work on the competencies which are needed by students.

Ms. Dursum explained that the March 9 event will be a CAD/CAM workshop, including a tour of Megatech. A web page is being set up as the primary communication link. The annual drafting

contest for high school students will be held at OCC on March 12, with the assistance of Mr. Khan and Mr. Tom Sawasky. Individuals from industry will be needed to work on problems and serve as judges.

Mr. Sawasky commented that industry is constantly raising the bar of what is expected of incoming persons. This raises OCC's bar of what we must expect of persons outgoing from our programs. We are currently proposing that we require 84 credit hours to reach that bar in the Auto Body Design Option. We need to look at the skills students have when they come into the program. Currently the Tech Prep program provides us with students who have a higher level of incoming skills, and we give ten credits to Tech Prep students. We may need to consider requiring prerequisite skills for entry into the program, such as skills in basic math, personal computer understanding, basic CAD, and an understanding of geometry. If students came in with those skills, they could start earning their CAD associate degree from that point, and we could lower the number of credit hours required in the CAD Program.

Mr. Sawasky mentioned that Western Michigan University has received a 50 million dollar grant to establish a CATIA training center with Lear. Mr. Buz Nowicki responded that OCC could also have access to similar funding. Western Michigan is the first university to sign up with this program.

Mr. Victor agreed that industry has raised the bar as to what is required of incoming employees. Industry needs the community colleges and universities. Industry is looking for true design engineers, not just designers. In Europe and Japan, engineers with four-year degrees are doing their own design work. Tier One would like to move in the same direction, but we currently have either engineers or designers, not people who can do both.

Mr. Dick Biermacher reported that, in his area and others at DaimlerChrysler, they now require a four-year degree as a minimum for entrance into their area. They then put new employees on a computer for 18 months so they understand the systems and design process.

Mr. Biermacher commented on the fact that the advisory committee does not have representatives from the job shops. He believes we need a couple people on the committee to represent that area.

Mr. Charlie Kurzer pointed out that the four-year degree in design that industry is looking for is not easy to find. Only two schools in Michigan offer this type of degree: Eastern Michigan University and Central Michigan University. Students are trying to meet the requirements of industry, but are having a hard time doing so, so they are doing combinations of credentials.

Mr. Biermacher commented that there are many different types of industry that need design personnel, including such industries as aircraft, medical, and lighting. Each industry has different needs. In his department, they are required to hire people with three specific types of bachelor's degree. After they are hired, they send them for CATIA training. OCC needs to look at the many different types of industrial areas that need people with CAD training and what percentages of

new employees are being hired in each industry segment. Then OCC needs to consider how to support these areas of industry within the CAD Program. We must define the target so we are not shooting in the dark.

Mr. Tom Kudzia stated that the College needs to decide whether to teach how to design and do engineering using the tools, or whether to teach the tools. He gets students in his class who have no idea how to design a part. He believes we are currently teaching a tool, rather than how to design, in our design classes. We must either teach just the tool, whether CATIA, Unigraphics, or AutoCAD, or teach design concepts using the software as a tool. Mr. Kudzia believes we should be teaching design concepts. We could perhaps offer a separate class to simply teach the software.

Dr. Blackman agreed that such a class would be possible, and it would not necessarily need to be a credit class.

Mr. Sawasky stated that, with software being constantly upgraded, we can't keep up with the constant changes. We need to consider what the core technologies are that everyone coming into industry should have. There should be a department-wide core and a core for each degree area. The tool will change, but the core will not change.

Mr. Kudzia and Mr. Senft agreed, stating that if people are trained to be design engineers, they should be able to do their design job with minimal training on any system. If students have the basic skills, their ability to use the tool can be enhanced on the job in industry. OCC needs to take the job descriptions of people being hired and work backwards from that to establish the core competencies which need to be taught.

Mr. Jeff Figa reported that his company is doing a project for Ford, which uses Ideas software. He has had difficulty finding people who can use this software. At his company, they are not looking for degrees, but rather for people who can use the particular software needed for a particular project.

Mr. Khan responded that he is working with SDRC to see if OCC can obtain a license for Ideas. Perhaps we could develop a single course on Ideas, or have a generic course listed in the schedule of classes with a footnote stating that it will be taught using Ideas software.

Mr. Khan commented that the missing component at Tech Prep meetings seems to be representatives of the four-year universities. They need to be there to hear the things being stated at this meeting about trends in industry, so that OCC can become involved in 2+2 agreements with them.

Ms. Dursum responded that that is another goal of the Design and Manufacturing Alliance. They hope to have more clout by addressing universities collectively. They have approached the universities, but received no response.

Review of Auto Body Design Option

Mr. Khan explained the curriculum changes which he has recently taken through OCC's curriculum revision process. When he met with the College Curriculum Committee, he was told that the proposed revision of the Auto Body Design Option had too many credits. The current revision would require 84 credits, and the certificate 49. The Curriculum Committee instructed him to get feedback from the advisory committee on how to lower the number of credits required for this program. Mr. Khan referred to recommendation 19, which states:

- 19. That CAD 220, Product Design and Layout, and CAD 270.1, Applications of Body Design, be combined into a single course.**

Mr. Khan asked whether we really need CAD 220 as part of the Body Design Option. Also, what level of math do students need for this program? He asked the group to look at the program and make recommendations.

The representatives from General Motors and DaimlerChrysler stated that drawings are now a thing of the past, and even the term layout is not used anymore. Today everything is solids. There should be an opportunity to combine classes.

Mr. Khan asked the group about the math requirements. The program currently requires MAT 154, College Algebra, and MAT 156, Trigonometry. Some members responded that we should not eliminate or lower the math requirements because this level of math is needed by those who will be working as application engineers. But it was pointed out that not all program graduates will be doing that type of work. The level of math needed would depend upon the career goals of the particular student.

Mr. Figa stated that we should look at the program as someone's resume when applying for a job. To be hired at his company, students must have solids experience, but he does not see that listed as part of the program. Mr. Khan responded that CAD 130 has been replaced by a new course, CAD 211, Topics in Design and Drafting Applications. Instruction in solids has been built into this new course.

Dr. Blackman asked for volunteers to work with OCC personnel as a subcommittee to review this program option and bring suggestions back to the advisory committee for approval. Mr. Figa, Mr. Senft, Mr. Kudzia, and Mr. Victor volunteered to serve on this subcommittee.

Mr. Kurzer pointed out that the program currently requires two co-op internships. Perhaps one could be required and the other be made an elective. Mr. Khan responded that General Motors wants co-op students for a full year. In the past, industry has said the two courses were needed. Students who are working and do not need the co-op experience can substitute other courses for the co-op requirements.

Mr. Kudzia and Mr. Victor raised the question of the manual drafting classes, stating that Tier One is dictating that Tier Two and Tier Three must use CAD rather than manual drawings. Mr. Kudzia believes that, if CAD classes are taught correctly, the required concepts can be taught on the computer. He does not believe there is any need to require manual drafting classes.

Future Direction of Automotive/Industrial Modeling Option

Mr. Khan explained the history of this option and why it was created to help supply industrial modelers for DaimlerChrysler. However, there are currently no students enrolled in this option. He asked the group whether we should sunset this option, since there is so little interest in it. Mr. Khan reported that he has been working with Mr. Steve Atma to develop a possible Computer Aided Manufacturing Option.

Representatives of General Motors and DaimlerChrysler responded that there are new methods used now, such as simulation, to do what used to be done with clay. The entire process is different.

Mr. Sawasky raised the issue of the representation of the advisory committee, pointing out that most of the members are from the auto design side of the industry, while there is little representation from the tooling or manufacturing design area.

Mr. Kudzia and Mr. Senft responded that these are not separate processes anymore. It is one synchronous thing, with everyone involved. It is not possible to break it down as to design people and manufacturing people.

Mr. Sawasky stated again that there is a need for representatives from processing organizations such as CMI or Foundry. A whole portion of the business is not represented on this committee.

Dr. Blackman told the group that they would be contacted throughout the year and asked to review materials and provide feedback. She suggested that, as we look at these options, we need to consider whether there are areas of specialization in which students could take a few courses and earn a certificate. Perhaps we do not need so many two-year degrees, but could rather offer a series of certificates that would provide students with stepping stones to help them do a specific job or advance in their career.

Current and Future Trends: Feedback from Industry

Mr. Victor mentioned that many Tier One companies are doing continuous engineering. Jobs are being sent to other countries, such as the Philippines, where that is being done. Many jobs are leaving the United States to be done in countries where they have the people qualified to do the jobs that are needed.

Mr. Figa pointed out that Original Equipment Manufacturers (OEM's) put a lot of guidelines and standards on data, and people must be trained to follow those procedures. Maybe something could be included in classes in regard to the thought process that is needed, keeping in mind where this model will end up.

Mr. Senft suggested membership on the advisory committee from the Automotive Industry Action Group (AIAG). Dr. Blackman mentioned that we will be reviewing the membership of all the advisory committees to make sure the membership is balanced and representative of the industry. We will be giving members opportunity to recommend others for membership. Mr. Biermacher suggested it would be good to have people from organizations such as job shops. Dr. Blackman suggested that perhaps one or two people from those types of organizations could serve on the subcommittee to consider the curriculum revision.

Mr. Burdzinski asked the group about the importance of simulation in the design field, and what sort of classes OCC should be offering in that area. Mr. Senft responded that almost 50 percent of a job's design activity is simulation and predicting at a product level. In regard to classes, General Motors has in-house programs, using a couple of companies that provide that service.

Mr. Nowicki mentioned that CATIA has products that address this. It is a rapidly changing area, and OCC should try to stay on top of it. Mr. Nowicki would be glad to work with OCC personnel on a particular course.

The group agreed that simulation is very important. Nearly everything is being done and tested through simulation.

Appreciation

Dr. Blackman thanked the group for their service as members of the advisory committee. She presented each member with a certificate of appreciation and a small gift.

Advisory Committee Recommendations

1. That instruction in organizing data be included in the CAD Program.
2. That OCC continue to pursue the possibility of offering a class in design simulation, possibly using Deneb or Moldflow software, or some other type of simulation software which might be available.
3. That OCC consider the many different types of industry that need people with CAD training and how to best support those areas of industry within the CAD Program.

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4. That the CAD Program focus on teaching design concepts using the software as a tool, rather than teaching a particular software. That OCC consider offering separate classes to simply teach the software.
5. That OCC establish the core competencies which need to be taught in the CAD Program based on the job descriptions of people being hired in the industry.
6. That OCC consider offering a course using Ideas software.
7. That Mr. Jeff Figa, Mr. Erich Senft, Mr. Tom Kudzia, and Mr. Chris Victor form a subcommittee to work with OCC personnel to review the Auto Body Design Option and bring suggestions for revision back to the advisory committee for approval.
8. That OCC seek to expand the membership of the CAD Advisory Committee to provide more balanced representation of all aspects of the industry, including members from job shops and the Automotive Industry Action Group (AIAG).

Respectfully submitted,



Ruth Springer

(advf98:cad121198)



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