Collin County Community College District & Richland College
Advisory Committee Meeting Minutes
Semiconductor Program

Date & Time: Friday, February 7, 2003 @ 8:00 a.m.

Present:

Ezra Penermon	Texas Instruments/Committee Chair
Alan Cole	Photronics
John Shellene	DFW Greater Dallas Chamber of Commerce
Bill Grubbs	University of North Texas

Richland College Ex-Officios

Brent Donham	Dean Engineering Technology & Emerging Programs
Stan Kohan	Instructor
Gay Ricks	

Collin County Community College Ex-Officios

Ann Beheler	Dean Engineering Technology
Wayne Jones	Associate Dean Engineering Technology
Pete Brierley	Instructor
Joe Hackney	Instructor
Bob Meeks	Instructor
Helen Sullivan	North Texas Regional Technology Consortium

Ezra welcomed all in attendance, referring to the agenda he would follow. He emphasized the need to pull together to keep the momentum going with the Committee in this down economy. Ezra asked everyone to introduce themselves and their involvement with the committee.

The minutes were then reviewed. Ezra sought a motion to approve the minutes. Alan Cole motioned to approve; John Shellene seconded the motion. Ezra asked if there were any problems with the minutes; there being none, all were in favor to approve the minutes.

In keeping with what is next on the agenda, Industry Trends and Comments, Ezra commented that at TI they are seeing a gradual rebound even in this tough economy. There is slow growth even in though it is a down year. Hiring is still going on for operators, as well as technical and engineering. There's slow growth in 2003.

Wayne Jones if the hiring is of seasoned vets? Ezra responded they really had opportunities to land talented and experienced personnel. The bulk of the individuals

hired are those who have worked in the semiconductor field, although some have been hired straight out of school. The intern program consistently continues to hire. The mix is heavily favored to experienced individuals; but if you review the ratio, the interns are still hired at 100%.

Next, Alan Cole indicated that they have experienced improved, steady sales growth. Their workforce is seeing more experienced individuals coming in the door; also they are promoting from within. They've increased their work force 3-4%. They've also started to work with Effective Training Solutions, who do training for staff to take the guesswork out of their job and be better suited for their positions. Helen Sullivan asked Alan if there was a cost benefit analysis for this training. Alan responded that they did have to show a turn around.

John Shellene stated that they are also doing well. They have one company doing a large acquisition. The semiconductor companies appear to be pretty volatile at this time. It's on a continuing incline. Several companies are defense based. With the possibility of war, there is a continuing incline. Raytheon's hired 100 engineers in the past twelve months.

Wayne posed the question to industry—what skill sets should we tell our students they need to prepare and, what, if any, new growth, hiring is being done by industry at this time.

John Shellene responded that it is his experience that students without work experience have the technical skills needed that students didn't have ten or fifteen years ago. However, they need soft skills, e.g. communication skills, presentation and project management skills. These aren't typical skills of technicians but are needed anyway. Helen asked John if these requirements are discussed during the hiring process. He responded that they are not; lack of these skills is discovered after the person gets on the job. Wayne commented that we have heard this comment about the lack of soft skills before. We as educators need to emphasize the importance to the students and teach them curriculum overhauls. John added that TI has training software for soft skills, which is very good; he also added that the quality of the community college technicians is great when it comes to their skills.

Brent Donham added that many classes require power point presentations. It's not the ultimate solution, but it helps. Ann commented that, when she was at Richland, there was a project plan to present in class in the program. Is that something that would work for the students' needs?

Ezra said yes, it would help; might also want to integrate project management, presentation and define project structure so there are regular intervals of review, not just one presentation at the end. Update presentations are helpful. This would increase the opportunity to communicate on a project. Alan commented that, additionally observation and listening skills for entry level were low. He sees doing much more cross training to get a broader range of skills within the workforce.

Pete Brierley commented that project management is not just an update status; it's also about where you are. Have the team present how they were going to handle a problem, possible solutions to the problem and how *they* are going to resolve the problem. Ezra added that lack of critical thinking skills is a problem. Technicians in this environment are charged with solving problems. They need to come up with ideas to correct the problem; not trained to go outside the specs. If working on a tool and it doesn't function, can't say sorry, it's not working!

There being no other comments on this matter, Ezra proceed with John Shellene's update regarding the workforce. Johns started by saying that he's been working on marketing, looking at a new firm to create a new website. The new address will be www.destinationdigital.org Once on that site, one can take a path for Dallas or Austin. The marketing committee is trying to set focus groups for 9-10 years to see what they look at for marketing, media, to building their education for career options. He's currently working with Nancy Rollins in trying to get a technology information session together so that teachers will get the idea of what's going on in the field.

Additionally, John said, there will be a summit working with SMU science technology on April 5th to give teachers the tools they need to go back to their schools, with topics and curriculum, which is hard for them to conceptualize. It'll be good for students to apply. Visitors from industry will be welcome. It will be targeting math, science and technology. Ann volunteered the Preston Ridge Campus, as a central location, to host this event. Alan inquired as to what technical areas? John responded that it's primarily semiconductor, but it's an area that helps everything run. Ezra asked John to name those companies for the group, which are within the DFW area. John named TI, DRS, Raytheon, Triquint Micron and National Semiconductor, Dallas Semiconductor, Maxum, and STMicroelectronics. Dr. Grubbs inquired as to what encompasses the area of the Dallas Greater Chamber of Commerce? John informed him that there are nine counties running east which are primarily involved.

Moving along, Ezra asked Ann for an update at Collin County Community College. Ann ran through all the various programs offered at quad-C. We want, she said, students to have more of a well-rounded background. Obviously, that is a requirement of industry. Ann briefly reviewed Engineering/Electronics Technology, Semiconductor, CADD, INDS, Telecommunications and Computer Networking. Many individuals in faculty teach a multiple of courses, which helps us, and the students, with their background. Coming up in the future, we will have new classrooms and lab space on campus at both the Spring Creek Campus and the Preston Ridge Campus. We anticipate needing more labs when the industry, once again, is on the up swing. Ann added that we are currently working with Dr. Grubbs at UNT on a transfer program. We have new certificates and degrees for security analyst, processing, electrical optic engineering and digital signal processing programming pending before CAB. In January our faculty went through Infinity training. John Sellene explained for the group that Inifinity training is to promote engineering and pre-engineering to students before they get to college, at the high school

level, so they'll be aware of that course study as an option. Ann added that this helps with the instant gratification of students because they can start to build their curriculum. John said students can building cell phones and have actual applications of the course material. Ann is working with them in partnership with Infinity to incorporate it in the Introduction to Engineering course. Some students are hesitant to go into Engineering because of the math and science.

Ezra elaborated that Infinity is also doing a series of outreach and open house events through SMU called Visioneering to attract students of this age group. Students show how DSP technology is used in real world applications. John Sellene informed the group that there is one such event tomorrow at SMU, with orientation at 8:30 a.m. and the program running from 9 a.m. – 3 p.m. They are expecting about 800 8th grades. The students will have a team leader and are given a design challenge to work on. Betty Willis at the Engineering school at SMU will take names of volunteers. Ann continued, regarding the Infinity training, stating that our faculty enjoyed, and got a lot out of, the Infinity training. This semester we're teaching the first Infinity based course. We also have a new printed circuit board degree.

The convergence lab is something else new and exciting at quad-C. It supports teaching students to integrate programs and projects. Ann suggested that perhaps the next Semiconductor Advisory Committee meeting be held at the Preston Ridge Campus so as to have a tour of the convergence lab. She continued explaining the various program—Computer Networking is still supporting A+, Network+, MCSE and MCNA; the Cisco program is supporting the CCNA and CCNP classes; in the Interior Design program in this time of downsizing, there's a big need for space planners. There's an integrated circuit design class approved for next fall; of course we still have CADD and printed circuit board design.

Registration in the Cisco program is down significantly. From speaking with her colleagues, Ann states that it is down across the entire nation. In the Electrical Engineering Technology certificate and degree plan, there's a fair amount of overlapping. This is good for the students so they can add on different experiences. In Semiconductor, there's a large program at STMicroelectronics. Joe Hackney gave an update on the ST program. Joe said we followed a basic outline for semiconductor; some substitutes were given for convenience. Upgraded the algebra to calculus-based course. Joe would appreciate some feedback from Dr. Grubbs regarding transferability. This semester 28 individuals from ST will graduate. Lots of them are getting two degrees—EET and Semiconductor.

Ann said that quad-C is also doing transfer audits to show individuals how close they are to a degree or certificate. Some students just see it as career enhancing. Telecommunications is hurting. Some individuals are moving into EET or Computer Networking. Wayne Jones added that the Electro Optical Engineering course is a marriage between the two under the Engineering Technology program. A certificate and degree is available. Telecommunications is expected to bounce back; it's a high growth rate area. We'll be the second community college to offer this program. Our twist is

later and Telecommunications and optical networking. We're looking to the future. We're looking to other four-year colleges to do Engineering on our campus.

Dr. Grubbs added that, besides motivation to provide students the opportunity to go forward, there is a selfish motive. UNT has all the faculty and students we can handle. We've gone beyond capacity. We're at the point of having limits at the lower division level so our upper division can follow along. Dr. Grubbs would be happy if they were upper division only. There won't be any new faculty being hired.

Ann would like to attract a boarder range of students who think they can't do it when they can. John Shellene suggested that, to make those programs successful, we need to get into the K-12 grades to ensure they have the encouragement in the math and sciences that they need. Joe Hackney asked Dr. Grubbs if we have an upper level of articulation program, which meshes with UNT? Dr. Grubbs responded that they do, but never got to the Board for approval; still have the work that was done on it and the information. Joe asked if UNT was accepted algebra based programs. Dr. Grubbs said it depends. Some lower divisions can but not the upper; they usually need calculus. Dr. Grubbs said he needs to meet with Ann and Joe at ST to get a program started. Ann agreed.

Wayne Jones added that we have an approved AS degree in engineering with calculus and physics based; also a two year degree in electronics and engineering technology. Wayne asked Dr. Grubbs if the Field of Study document was effective and whether or not four-year colleges are really on board and is there any wiggle room. Dr. Grubbs responded that there is wiggle room in the tracts. Need to note which university is identified with which tract. Dr. Grubbs is in tract three with A&M and can wiggle a little with some folks to accommodate them. Brent Donham stated that engineering has only one circuits course, whereas engineering technology has multiple. Joe Hackney indicated that EET is calculus based. Ezra suggested that members table what was said regarding Field of Study, what is calculus based and what is not, etc. Dr. Grubbs indicated that a big document was worked up in 1988 from the information, which was compiled; the bottom line said each student check with each institution on what's accepted.

Ezra asked Brent Donham to present an update on Richland. Brent said the numbers are higher in the internship programs. Sixty-nine in the fall/spring semesters took the semiconductor classes; have seventeen interns this semester at TI. Richland has had thirty-four grads in semiconductor; had thirty in electronics. Brent anticipates 10-12 in the Semiconductor program. They're working with the Texas Two Step Program with the high schools. The high school students want more hands on experience; they're being put them in photronics labs. They're also including 5th and 8th graders in this project. Richland will be participating in the Garland ISD open house in March. They also have dual credit with Richardson ISD. Engineering Technology club is moving forward. The students will build a robotic duck. Once the group completes this project, they will invite the high school students to observe and participate. Richland would like to build the club before inviting high school students to join so that the club will be going strong. Brent prepared a survey just for the Engineering Technology area, asking students what they would like upgraded; the biggest response was that students want more information on

job placements and transfers. Ezra questioned how that information would be passed on to the students. How will Richland convey employment potential? Does the industry provide feedback? What is the placement rate? Brent responded that the rate is greater than 95%. He never gives promises to students. Just gives them the facts. Given the present state of the industry, they may have to work harder but see that it's not going away. Never promised students a pot of gold. Keep options open.

Stan Kohn stated that one has to be upfront with the students. Need to make them aware that just being in this field does not guarantee one a job. Ezra agreed a hundred percent. When they have folks apply at TI, they look for individuals who have applied themselves. Not that you're laying out incorrect facts; it would be nice to have strong figures to substantiate this information. Joe Hackney suggested that IT gets that information from TEC. Ezra asked how we could have that information, make sure we have tracking, etc. to see if students are getting jobs in the field. Brent said he can go back on his individual information tracking those who went into the field, but don't know if they stayed there. The tracking Ezra is seeking is information for the parents. Students already know folks in the industry jobs. Ezra suggested that more than one semester of information is needed; it would be good to see the whole picture over a three-year period.

Dr. Grubbs stated that most of his students are employed before they even graduate. The other day, for the first time in ten years, he encountered a student who said he didn't have a job before he graduated. Promote the program of education on science. Lots of engineers don't work in engineering; they're in HR or are problem solvers.

Ezra asked if there are any other questions or topics for discussion. Pete Brierley stated that no one had mentioned what is being done to improve the math programs in the secondary schools. Basic math in students is a problem. The foreign students can handle it, but our own students cannot. Ezra commented that it's a very well known issue and the problem may be to deal with better preparation of students in math and science. John Shellene added that there are many new ideas for math development, what with the new TASK test. There'll have to be a lot more need for applications in high school. Students must have written notes from parents and counselors to opt out of lower math classes. There are small steps being taken in this regard. Pete added that teachers aren't being taught the necessary skills. John emphasized that the teachers will either need to learn the new skills or leave the field. Ezra stated that one of the things the education program does is teach teachers to work with technology. To give them real world math skills needed. One program currently in existence is the Agricultural Preparation, which gives practical applications in agriculture and math, for example to figure the slope of land and calculate formulas to predict birth rate of sheep. How do we get programs to everyone? Don't know how long it will take for the turn around. Many entities are working on changes, e.g. the legislature. Pete emphasized that teachers don't understand the reality of the applications.

Dr. Grubbs said there is good news. UNT was able to hire a Dean before the hiring freeze; the bad news is, as with all budget cuts in the future, as of this morning, the

research building is frozen. Times will really be tough. There are some vacancies that weren't already filled which are now frozen. Our ability to do things in the next few years will be limited.

Ezra thanks Ann and Brent for their reviews, which generated several comments. Before closing the next meeting date needs to be scheduled. All agreed that Friday, September 19, 2003 is a good date; Richland College will host. There being nothing further, the meeting was adjourned.