

## UND Engineering Distance Learning Origins

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It started with 3M moving part of the R&D from Minnesota to Austin, Texas, circa 1990. 3M offered to help employees find a job, if they did not want to move to Texas.

3M was surprised that the technicians, who had an engineering degree from International Correspondence Schools, was not valid as ICS was not ABET accredited.

3M approached the U of Minnesota, then the U of Wisconsin to provide a distance learning ABET accredited engineering degree program. Both refused. UND accepted.

I joined UND in 1991, because I saw this as an interesting opportunity for something completely different from electronic design. When I joined UND, that program had four 3M students enrolled. There was one course per semester.

The number one challenge was appropriate recording equipment. With funding by 3M, I equipped two classrooms with high-quality cameras and multiple TV monitors.

Both cameras were connected to a video mixer in a small room. That room had a stack of VCRs to record the audio / video.

The classrooms also had an overhead projector with a video camera mounted on the top. That video camera captured items on the overhead projector plate. That video camera output was broadcast to the control room and to the TV monitors in the classroom.

Barcodes were added to the VCR tapes. Every barcode was logged before being sent to a student. Students needed to complete the homework, and return the video tapes, within three weeks. All exams were proctored locally by company Human Resources or by a library.

Initially, it was expected that all students had completed the first two years of college at a community college. Fairly quickly, we discovered that Calculus was not provided at some community colleges. We added Calculus courses to the distance learning program.

The course sequence was structured so the students could obtain their degree in three years with two courses per semester, or six years with one course per semester.

I had to recruit faculty to allow recording their lecture, and to teach distance learning students. The faculty were paid extra for the additional workload, which made it easier to recruit!

The students had to send their high school transcripts to UND. The faculty were skeptical about these students as they barely passed high school. The faculty were shocked that these students were curve busters! Those students excelled in their classes! They were in college for a different reason than the local students!

What those distance students liked best was convenience, convenience, and convenience. They did not have to miss a son's band concert, etc., because they could watch the video clips at their convenience!

The number one thing that distance students did not like, was that they could not ask questions (although invariably, local students would eventually ask those questions).

When I left in 1996, we had many more students with 15 courses per semester. It included students from large companies such as GE and HP.

I went back to industry / electronic design in 1996, as there was nothing left to do at UND. I had everything set up, including applying for ABET accreditation.

I think this is still the only nationally ABET accredited distance engineering education degree in the country.