

Evolution of “Engineering Connections” in IEEE Central NC

The Central NC Section has been involved with the Teacher In-Service Program (TISP) since its roll out in 2005. After the training session in Atlanta in July 2005, a series of exploratory meetings were held with various members of the IEEE Central NC Section. This evolved into the formation of a TISP steering committee with a local science teacher and section members from industry and higher education. We analyzed the SAMIEEE section membership and determined that 90% of the members live in Alamance and Guilford Counties; therefore we focused on these two counties.

The Steering Committee was very beneficial in getting the program organized and vetted. Our first session was limited in time with only a cursory introduction of the program. The Science Teacher was very helpful by inviting the TISP Team to present the pilot TISP session to his Science Club. Starting with that session we have always had from 2-5 Section Members assisting with the sessions.

IEEE Region 3 and Central NC Section partnered in providing the start-up materials for the TISP sessions. We developed a presentation around the electronic focused lesson plans from the initial 15 TISP lesson plans. The Science Teacher assisted us in aligning the initial 15 lesson plans to the NC standards. The launch of the www.TryEngineering.org was welcomed in that it provided a portal which had useful resources for use in the Education Activities outreach program; it still is a major resource for which we refer in our promoting 21st Century STEM Skill Sets in the Schools.

The NCA&T Electrical Engineering Department made available to the Team 13 Radio Shack RS-202 Electronic snap-together kits. These electronic kits have been much more effective in introducing electronics to the students than the initial box of loose electronic parts. Two session participants work with one kit therefore we can handle 26 students without any problem. The kits have a manual and a wide variety of electronic and solid state devices to

connect into working apparatuses. In most cases we include an activity which uses the kit. Another activity we have found effective in our sessions is exploring www.TryEngineering.org.

After the TISP Team conducted several TISP sessions, Teachers started inviting Engineers into the Classroom, which we called “Engineers in the Classroom”. Also, we found that by putting up the presentations on the Section Website www.ieee.org/cnc (TISP), we were able to reduce the number of handouts and provide the Teachers and Students with a place to reference the material covered online.

Our first connection with the schools was the Science Curricula Coordinator. When one of the Teachers attended from the Vocational Career area, we were invited to participate in a Middle and High School Staff Development work week for the Vocational Career Track. We have conducted sessions which have ranged from 45 minutes to 2.5 hours; a two hour session works best for the sessions we have. Sessions have been conducted on Teacher work days, at the beginning of school day and at the end of the school day. The Section has provided refreshments, Pizza and Breakfast for sessions at end or start of school day.

We have conducted TISP sessions with Middle and High School Teachers attending together and separately; also we conducted “Engineers in the Classroom” sessions in Middle and High Schools. After hearing that research indicates that students start to disengage from school between Third and Sixth grades we conducted a session with a Fifth Grade AIG class which we understand from the Teachers, Principal and Parents had the students buzzing throughout the week; they have invited us back for more sessions.

Once IEEE was not known in our schools, however, now we have recognition and are being asked to expand our work in the local schools. Our latest venture is an “Engineering Connections” Program where the IEEE Central North Carolina Section is partnered with the Guilford Education Alliance; two Middle Colleges located on the local GTCC community college campuses and Weaver Academy; and

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five Industry Partners. The pilot was launched during the 2008 fall semester with Lunch & Learn and Classroom Connections Sessions. In the 2009 spring semester, our objective is to expand that with Job Shadowing and Field Trips. The primary objective is to bring "Real Life Understanding" into the classroom. The program is documented at <http://ec.guilfordeducationalliance.org/index.htm>.

Our Section has also participated in High School Career Fairs and has been invited to participate in a Middle School Career Fair. The NCA&T IEEE Student Chapter has partnered with the CNC Section Education Activities Team in the Career Fairs and the Engineers in the classroom sessions at the Middle School. Students at NCA&T now are required to have a minimum of 50 Service Learning Hours before graduation; IEEE Central NC Section is exploring becoming a partner with the Civic and Service Education (CASE) program so they can receive credits for their work with our IEEE Engineering Connections program.

Based on the variety of Education Activities the Section has been involved with, we now refer to all the activities as "Engineering Connections" which includes Teacher In-Service Program, "Engineers in the Classroom", Career Fairs, and the Middle College Lunch & Learn and Classroom Connections.

As part of our outreach we are also are involved in promoting various challenges such as Future City, Construction Challenge and FIRST Robotics etal.

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Mentors and Mentoring

I came to North Carolina in 1999 and decided to check out the local IEEE chapters.

Dave Ruden, who was the Eastern North Carolina Section Chair or Past Chair at the time was very friendly, open, and encouraging. So I came out to one meeting, met him and some of the other folks. Chris Seigl, who was the Computer Society Chapter Chair noticed that I started showing up a few times to his Computer Society

meetings and promptly asked if I could help him out. It took a few years for me to warm up to the idea and along the way I got elevated to Senior IEEE Member status. I received help and encouragement from Dave Ruden, Roger Lawrence (Section Chair at the time) and Jim Ray (Section Treasurer & Membership Development). When I finally decided I was ready to help Chris with the Computer Society, he had a serious family tragedy that kept him away from the million things he was volunteering for, so I took on the Computer Society Chapter Chair with absolutely no experience. All the Section Executives mentioned above and Thomas Jepson, the current Section Chair have been so helpful and encouraging. They all mentor me so that I've been able to manage quite well. Even Roger's wife, Martha offered advice and helped me by writing and sending out an announcement to the Computer Society when he was out of town. These exec's are all very busy people, but they have a contagious dedication and comparison for the IEEE. I invite all Eastern North Carolina Section members to come to a section meeting or social event and see for yourself.

John Powell

Attention Professional Members Have we got a job for you!

SouthestCon2009 wants to promote more interaction and exchange of ideas between our student members and our professional members. In order to do this, we need your help. There will be several opportunities, both during meals and throughout the conference, to engage students in conversation. Please take advantage of these opportunities, take the initiative, and spend sometime with them. At the Section level, you may want to discuss other ways to continue this interaction after the conference is over. Together, professional and students are integral to IEEE's future.