

The TISP Canada Courier #4



October 16, 2012

Second Summer Institute for Elementary Teachers

IEEE's Ottawa Section presented an inspiring TISP workshop at SIET 2012 to school teachers from across Canada. Janet Davis gives us the highlights and some pointers.

The Canada Science and Technology Museums Corporation hosted its second Summer Institute for Elementary Teachers (SIET) in Ottawa from July 17 to 19, 2012. Our TISP team of IEEE's Ottawa Section got involved in the SIET program preparations and organized a workshop for elementary school teachers from across Canada. We are happy to contribute to this event, because

the mandate of the Summer Institute aligns very well with our IEEE and TISP objectives. In short, the SIET program seeks to encourage elementary teachers to increase students' interest in science, technology, engineering, and math by integrating interactive activities and challenges to capture student interest. The Institute serves to enhance teachers' personal interest, understanding, and enthusiasm for teaching inquiry-based learning and equip them with strategies for critical thinking and problem solving.

This year's workshop consisted of two main activities. At the outset we presented an overview of the IEEE TISP program in order to raise awareness of the main goals and the teaching resources. The second activity then introduced teachers to one of the *try.engineering* lesson plans. We provided the materials to do the "Working with Wind Energy" lesson plan in keeping with the overall Energy theme of SIET 2012. We received very positive feedback from the teachers. Many participants said the workshop *(continued on page 3)*

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TISP Reports from the Regions

TISP-Canada relies on active participation from all regions of the country. These columns report on recent work and upcoming events as well as trials and accomplishments of TISP volunteers.

Newfoundland and Labrador

The Newfoundland and Labrador Section is in the planning stages for a special TISP event at the end of October. The TISP volunteers of the Section are preparing a workshop with 'tryengineering' materials for teachers in the greater St. John's area. The organizing committee is looking at co-locating the workshop in conjunction with an upcoming professional development day for the teachers.

For further information contact Brian Kidney, the Newfoundland and Labrador Section TISP chair at bkidney@ieee.org

Quebec

Led by Samir Kherraf, the Montreal TISP team plans to engage in two activities during the month of November. On November 1, 2 and 3, the team will participate in the 47th annual

Congress organized by l'Association pour l'enseignement de la science et de la technologie au Québec (APSQ) in St. Hyacinth near Montreal. The team will have a booth for the entire period of this province-wide science teacher meeting and make a one-hour presentation based on the Transformer lesson plan (see *TISP Canada Courier # 2*) in close cooperation with the "instigator" of the plan, David Hepburn. The second activity of IEEE's Montreal Section involves a half-day presentation and lesson plan at the Collège Charles Lemoyne in Longueuil on November 16.

For more information on both events contact Samir Kherraf at samir.kherraf@ieee.org.

Ontario

The IEEE TISP champions in Ontario are putting a lot of their effort into preparations for the upcoming Science Teachers' Association of Ontario conference, STAO 2012. This year's conference will take place at the Double Tree Hilton Toronto Airport Hotel from November 15 to November 17. TISP champion David Hepburn has been invited to give a talk. TISP Canada will have a booth for three days at the event and

IEEE members and TISP champions Patrick Finnigan, Murray MacDonald, David Hepburn and Cathie Lowell, as well as other volunteers, will join to make this event a real success.

For further information on the event contact David Hepburn at dehepburn@sympatico.ca.

Manitoba

The IEEE Winnipeg Section has had a successful outreach program in 2012. The program has reached over 3,200 students and individuals in the Manitoba education sector. Since 2010, over 100 students have been participating in the satellite project (see also *TISP Canada Courier Issue #2* for details); the project is now in the final build-and-test phase. Furthermore, there are plans to hold a course on amateur radio for students this fall. Section members also took an active part in the recent Canadian Engineering Education Association (CEEA) Conference, held in Winnipeg from June 17 to 20, 2012 and presented a paper on their TISP activities.

For further information contact Witold Kinsner, the IEEE Winnipeg Section TISP chair at Witold.Kinsner@ad.umanitoba.ca

(continued from page 1) was their favourite part of the program.

More than 30 teachers took part in SIET 2012. They came from across Canada, working in communities in the Northwest Territories, Manitoba, Newfoundland, New Brunswick, Ontario and Quebec. Our workshop was geared to motivated and passionate primary and junior teachers who are willing to share their newly acquired insights and learning tools with other teachers in their home communities. We encouraged the participants to take back the information we provided to them and contact their local IEEE section TISP chairs for more information about ongoing TISP activities and additional lesson plans.

Here are a few pointers that give you a better idea of the SIET activities:

- ◆ Exploring how to capture students' interest in science, technology, engineering, and mathematics (STEM) by having them apply their knowledge and creativity to solve real-life problems.
- ◆ Experiencing activities that engage students in engineering problems that not only promote science, technology, and mathematics learning, but also connect with literacy, arts, and social studies.
- ◆ Discussing resource ideas and topics relevant to primary and junior science, technology, and math curricula.
- ◆ Participating in interactive workshops for their particular division, and have the opportunity to ask questions and discuss concerns with other classroom teachers.
- ◆ Learning how inventions, innovations, and systems are developed, and how technology becomes part of people's lives.
- ◆ Enjoying museum tours and social events with elementary teachers from across Canada.

- ◆ Becoming motivated and inspired with new ways to share the joys and mysteries of teaching elementary science, technology, and math.

As you can see from the smiling faces in the picture below, this program offers an excellent experience for the teachers that attend and we feel the students will benefit from all the information gained at this event.

Our Ottawa TISP committee is made up of local IEEE members and Ottawa teachers interested in sharing their excitement for Science and technology: Janet Davis – Ottawa Section TISP Chair, Paul McDonough – All Saints High School, Richard Seniuk – Glebe High School, and Ross Morrison – Longfields. Erin Poulton invited us to present the IEEE TISP workshop at SEIT. Tom Alföldi provided photographs. All Saints and Glebe HS are recipients of IEEE Canadian Foundation grants. 

For further information regarding SIET please send an email to education@technomuses.ca. For information regarding Ottawa Section TISP activities please contact Janet.Davis@ieee.org.



“Working with Wind Energy” was one of the highlights for the participants of the workshop. (Photo credit: Tom Alföldi)

A Decade on, TISP has Caught Fire Worldwide!

Patrick Finnigan is a TISP Champion of IEEE Region 7. In this article he reflects on the outcomes of the 2012 TISP Symposium in Tampa and some opportunities for TISP Canada.

The recent gathering of 100 IEEE volunteers and educational leaders from around the world at the TISP “Anniversary Symposium” in Tampa, Florida, demonstrated the widespread appeal of the Teacher In-Service Program and the tremendous impact it has achieved over the last 10 years.

It was here in nearby Manatee County, in February of 2001, that Principal Doug Gorham and Tampa electric engineer Ralph Painter organized training sessions for engineers and educators to spark the interest of students in engineering. A decade later, the program has engaged more than 4,200 teachers and 460,000 students, as John Platt recently reported in the August 20, 2012 issue of the IEEE's *The Insitute*.

So once again, Tampa was the gathering spot for IEEE TISP champions, this time coming from Hong Kong, India, South Africa, Zambia, and of



Canadian TISP Champions Mooney Sherman, Rossitza Marinova, and Anader Benyamin-Seeyar congregating in Tampa.

course all points in-between, including a cross-Canada representation from IEEE Region 7.

Dave Hepburn provided a summary of this event in *TISP Canada Courier #3*. In this article I would like to reflect on what it means to us in the TISP Canada program. For one, we have learned a lot about different TISP approaches and events that have been successful elsewhere.

How are we measuring up here in IEEE Region 7 with our TISP Program? In my view, one method is to evaluate our programs to-date against the overall goals of the global TISP initiative and then set our sights on improving things. We can start with what we have seen at the Tampa workshop as “best practices” and take a close look at the success stories from other TISP teams from around the world.

In the following I have outlined the main goals, the grades that I think we have achieved to-date, and a number of ways that we can improve our TISP here in Canada. We will track our improvements and report on them regularly.

The Goal: Teach more Teachers

Our grade: C

How can we improve?

- ◆ Run local workshops using existing volunteers – need volunteers to step outside existing “home” relationships to gain wider exposure.
- ◆ Run Regional workshop for Western Canada and U.S. Pacific Northwest in Vancouver 2013.
- ◆ Make presentations at Colleges of Education; the larger the group the better, since many teachers

who are not math or science specialists end up teaching it, especially in K-8.

- ◆ Build on existing teacher gatherings: Science Teacher conferences, board-level science and math teacher professional development sessions.
- ◆ Find other means to get TISP known at schools and perhaps send copies of the *TISP Canada Courier* to the heads of Science departments.

The Goal: Quick Growth

Our grade: B

How can we improve?

- ◆ Identify TISP Champions in *all* Sections.
- ◆ Build a table mapping existing TISP lessons to the mandated curriculum in as many provinces and territories as possible – start with Ontario.
- ◆ Add important and timely information to the IEEE Canada web site www.ieee.ca/tisp in addition to issues of our *TISP Canada Courier*.
- ◆ Greatly expand our existing contact list at tispcanadanewsletter@listserv.ieee.org for newsletter distribution, etc.

The Goal: Local Support is Key

Our grade: B

How can we improve?

- ◆ Make presentations to each IEEE Section's Executive – focus on results achieved so far.
- ◆ Identify teacher champions in each section – recognize them at IEEE events and meetings.
- ◆ Make sure each IEEE Section website (and any co-operating teacher web-sites, like STAO, have TISP information including the existing *TISP Courier* newsletter available.
- ◆ Secure local section funding for local initiatives.
- ◆ Make the TISP program a priority for IEEE Student Chapters, GOLD and WIE groups. Make

presentations; find champions in each of these groups in each section.

IEEE R7 is recognized as a “leader” in promoting TISP, and indeed our volunteers have reached many teachers who are effectively using TISP lessons plans in their classrooms. We have had remarkably quick growth. We have TISP champions in almost every Section, and local sections have made TISP a local priority and provided financial support.

However, we need to do more if we are going to meet the TISP global goal of reaching 500,000 students by the end of 2013. Let's meet the challenge! Our own self-evaluation is merely intended to stimulate thinking about what we can do better. Let's take a close look at how well we are doing and what incremental actions can improve our effectiveness! By working together and using contacts we made at the Tampa workshop, it should be possible to meet and even surpass this challenge. ☑

For details – and your own suggestions – contact Pat Finnegan at patrick_finnigan@ieee.org



TISP Champions from around the world working their magic during a “light” moment at the TISP Anniversary Symposium.

Recent Updates from www.tryengineering.org

“Periscope Up!” — Taking note of new and exciting lesson plans added on-line for teachers.

The *TryEngineering.org* web site is a treasure trove of sometimes curious but always exciting lesson plans for teachers. More than 100 plans are available and cover topics from “Arduino Blink Challenge” to “Working with Watermills.” These hands-on lesson plans reinforce key engineering concepts while building students’ critical thinking, team building and problem solving skills. Aside from the actual lesson plans there is also a training module available, providing useful tips and background information. Don’t forget to download the new lesson plan brochure!

Here are a few of the very latest additions to the lesson plan collection:

- ◆ Telescoping Periscope
- ◆ Planting with Precision
- ◆ Life Vest Challenge, and
- ◆ Conveyor Engineering

For further details see www.tryengineering.org.

The screenshot shows the TryEngineering.org website interface. At the top, there is a search bar and navigation links for COUNSELORS, PARENTS, STUDENTS, and TEACHERS. Below this is a main navigation bar with links for Explore Engineering, Opportunities, Find a University, Lesson Plans, Ask an Expert, and Play Games. The main content area is titled "Lesson Plans" and features a "Lesson Plan Survey" sponsored by IBM, IEEE, and TryScience. The text describes the variety of lesson plans available and provides a link to a training module. A photograph of an orange life vest is shown. At the bottom, there is a link to download the TryEngineering Lesson Plan Brochure.

Planning Ensures “Hands on” not an “Add on”

Katherine Davey, S&T educational consultant to Lester B. Pearson School Board in Montreal, helps teachers in 12 secondary schools bring classrooms to life — and life to classrooms.

Being able to balance equations might seem a prerequisite for a science and technology educational consultant.

But for Katherine Davey, employed at one of Quebec’s largest Anglophone School Boards, it’s not the periodic table she and her teacher clients peruse; rather, the elements they balance include content, skills, learning styles, time and money.

As the link between the school board, Quebec’s Ministry of Education, and secondary school science and technology teachers she supports, Davey notes how teachers are always looking for interesting activities. “The first question I ask is: ‘What are you working on in the curriculum?’” she explains. To be most valuable, activities should provide engaging ways to involve students in the concepts they are learning from the curriculum and develop their understanding of them, Davey says.

A similar fit is sought when community experts are invited to participate, says Davey, who marvels at their willingness to engage with teachers and students. While this enthusiasm is most welcome, she emphasizes the importance of making the right connections. “The need to share must match the need to know.”

If possible, bring community resources into the planning process “at the ground level,” she advises. As an example, she cites a highly successful program Lester B. Pearson jointly developed with the Morgan Arboretum at McGill University. “We brought the teachers and the naturalists together to develop activities for

students. The naturalists learned what works for our students, and the teachers explored the content they are teaching in an authentic way.” Teachers’ grasp of topics is deepened by working with community experts, making connections between concepts, says Davey.

Exploration of science and technology career opportunities is another facet of lesson planning that Davey helps teachers incorporate. A province-wide initiative called Guidance-Oriented Approach to Learning (GOAL) supports teachers’ efforts in this area through a variety of resources in curriculum, pedagogy and professional development; see <http://www.learnquebec.ca/>

Much of the planning takes place when teachers are on release days. This is an opportunity for Davey to also assist in grant application. Often she brings together groups of teachers, providing a critical forum for them to learn from each other’s successes and challenges, and discuss strategies. 

This piece was contributed by Bruce Van-Lane, writer for this and other IEEE Canada publications.

The Teachers’ Corner

The TISP community relies on feedback from educators. Tell your colleagues and our mentors what helps you teach science/technology better. Share your triumphs and trials, we welcome them both.

Some guidelines for contributors

Articles and news items are welcome and should be sent via email to the Editors.

The *TISP Canada Courier* accepts feature articles up to a length of 1000 words with suitable illustration material. Smaller news items should not exceed 500 words in length. Notices for upcoming events should be submitted in a timely fashion keeping in mind the quarterly publication schedule of the Newsletter.

Although the editors will usually consult with contributors regarding any significant change to material submitted, the *TISP Canada Courier* reserves the right to publish such material with any change(s) necessary to meet space requirements, or as otherwise deemed necessary.

This electronic newsletter is issued quarterly by TISP Canada of IEEE Region 7. Current issues and back issues are available free of charge and may be retrieved at www.ieee.ca/tisp.

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IEEE and TISP

The Teacher In-Service Program provides a forum for IEEE volunteers to demonstrate engineering, science and mathematics concepts by sharing their real-world experiences with local pre-university educators. IEEE offers workshops for its volunteers on how to provide in-service programs.

Part of the IEEE mandate is to address declining interest of students in engineering. IEEE seeks to raise awareness of technology amongst students, parents and teachers. The “TryEngineering” initiative involves IEEE, IBM and the New York Hall of Science. To-date, *TryEngineering.org* lesson plans have been downloaded more than 3 million times. The site has various great features, including a search for accredited university and college programs in many countries, including Canada. A new *TryComputing.org* portal has been launched this year.

More information is available at www.ieee.org/education_careers/education/preuniversity/tispt