"POLITEHNICA" UNIVERSITY OF BUCHAREST
FACULTY OF ELECTRONICS, TELECOMMUNICATIONS AND INFORMATION TECHNOLOGY
CENTER FOR TECHNOLOGICAL ELECTRONICS AND INTERCONNECTION TECHNIQUES

INTERCONNECTION TECHNIQUES IN ELECTRONICS

International Student Professional Contest

The 20th Edition, Bucharest, 13th-16th April 2011

TIE

DESIGN OF ELECTRONIC MODULES & ASSEMBLIES

www.tie.ro

The 20th Edition

Advance Program

Editors
Prof. Paul SVASTA, PhD.
Eng. Cristina MARGHESCU

Acknowledgement:
The organizers would like to thank "Yesterday" Resort – Hotel & Restaurant- for the outstanding services offered during the TIE event!

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GUVERNUL ROMÂNIEI
MINISTERUL MUNCII, FAMILIEI
ŞI PROTECŢIEI SOCIALE
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2007-2013

DESIGN OF ELECTRONIC MODULES & ASSEMBLIES

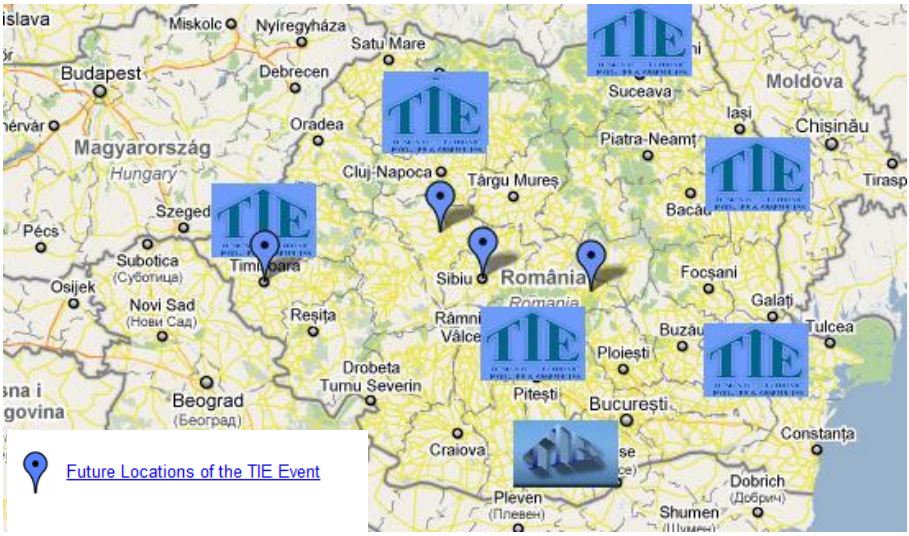
www.tie.ro

Student professional contest
The 20th Edition, Bucharest, April 13 - 16, 2011
and
Advanced Electronic Technology Workshops

Organized by:

"POLITEHNICA" UNIVERSITY OF BUCHAREST
The Faculty of Electronics, Telecommunications and Information Technology
Center for Technological Electronics and Interconnection Techniques
http://www.cetti.ro

TIE Past Editions



1992-2002	"Politehnica" University of Bucharest
2003	"Politehnica" University of Timişoara
2004	Technical University of Cluj-Napoca
2005	"Gh. Asachi" Technical University, Iaşi
2006	"Politehnica" University of Bucharest
2007	"Ştefan cel Mare" University of Suceava
2008	University of Piteşti
2009	University of "Dunărea de Jos" Galaţi
2010	Technical University of Cluj-Napoca

Welcome to the 20th Edition of the Student Professional Contest TIE – Design of Electronic Modules & Assemblies

The Faculty of Electronics, Telecommunications and Information Technology from POLITEHNICA University of Bucharest is honored to host the TIE traditional academic event which has reached its 20th anniversary edition. The participation to a student contest is an important step in the career of a future engineer, implying hard work, technical and communication skills, courage to face a challenge.

The 20th TIE edition gathers once again students and professors from Hungary (Budapest) and Romania (Alba-Iulia, Baia-Mare, Braşov, Cluj-Napoca, Craiova, Galaţi, Iaşi, Piteşti, Sibiu, Suceava, Timişoara and Bucharest). Support was also provided by important companies in electronics, telecommunications, IT and other domains. I am using this opportunity to thank them!

An important role is held by the TIE European consultants, prominent personalities in promoting education and training activities in electronic packaging. In the same time, a great role to maintain the spirit of the contest according with the electronic industry requirements is played by the TIE Industrial Advisor Committee. Through their involvement, TIE event has continuously increased its consistence and importance.

I want to congratulate all the student competitors for their ambition and all the participating professors for the passion they put in organizing and supporting this contest. Every participant is a winner even if he does not get an official prize.

I wish the participants an interesting and challenging event, and a pleasant stay in Bucharest!

Bucharest, Romania, April 9, 2011

Prof. Teodor Petrescu, PhD.

Dean of the Faculty of Electronics, Telecommunications
and Information Technology

40 Years of Electronic Technology within "Politehnica" University of Bucharest, Romania

Electronic Technology and Reliability Department (TEF) goes back to year 1971, the year of its establishment.

From the outset, the first head of department, Professor Doctor Engineer Vasile Cătuneanu, tried to impart the teaching staff, as a main coordinate of the scientific activity, the technological achievement (as finite electronic products) of electronic components designed within the department and / or with other collaborators.

This preoccupation has directed the department towards contracts and collaborations with industrial units from Bucharest as well as other cities, such as Pitesti, Targoviste, Calarasi.

Product studies - from design to technological implementation - have resulted in field-oriented symposiums such as SACEP, CNETAC and after year 1990, SIITME. Professors of the department along with engineers from various research and production institutions organized open lectures or seminars on topics of interest whose target audience were also students in their final years.

Especially in this activity we have tried to attract students who stood out at the CCP, Electronic Materials, CAD and TIE subjects - for which we organized a special professional contest, with national character (through the participation of students from many universities around the country).

We reached this way at the 20th edition of the professional contest of computer aided design for electronic circuits, a contest that has become international in the meantime.

We wish success to all participants and may this year's anniversary edition also bring along memorable results, valuable students, able to carry out and enforce at a collective level the valuing of the concept of OUTSTANDING TECHNOLOGICAL DESIGN!

Bucharest, Romania, April 9, 2011

Professor Paul Schiopu, Ph.D.
Head of TEF Department

TIE Past Editions Winners

Year	Name	University
2010	Dungă Tudor Dan	“Politehnica” University of Timisoara
2009	Răducanu Bogdan	“Politehnica” University of Bucharest
2008	Oşan Adrian	“Politehnica” University of Timisoara
2007	Tamaş Cosmin Andrei	“Politehnica” University of Bucharest
2006	Moscalu Dragoş	“Gh.Asachi” Technical University Iasi
2005	Andreiciuc Adrian	“Politehnica” University of Timisoara
2004	Berceanu Cristian	“Politehnica” University of Timisoara
2003	Munteanu George	“Politehnica” University of Bucharest
2002	Rangu Marius	“Politehnica” University of Timisoara
2001	Toma Corneliu	“Politehnica” University of Bucharest
2000	Vlad Andrei	“Politehnica” University of Bucharest
1999	Savu Mihai	“Politehnica” University of Bucharest
1998	Alexandrescu Dan	“Politehnica” University of Bucharest
1997	Gavrilaş Cristian	“Politehnica” University of Bucharest
1996	Vintilă Mihai	“Politehnica” University of Bucharest
1995	Ştefan Marius Sorin	“Politehnica” University of Bucharest
1994	Bucioc Mihai	“Politehnica” University of Bucharest
1993	Teodorescu Tudor	“Politehnica” University of Bucharest
1992	Teodorescu Tudor	“Politehnica” University of Bucharest

Event Committees 2011

Steering Committee

Chairman:
Prof. Paul Svasta, Ph.D., "Politehnica" University of Bucharest, Romania
Co-Chairman:
Prof. Dan Pitică, Ph.D., Technical University of Cluj-Napoca, Romania

Members:
Prof. Dorel Aiordăchioaie, Ph.D., University of "Dunărea de Jos" Galaţi, Romania
Alexandru Borcea, MBA, Romanian Association for Electronic and Software Industry
Assoc. Prof. Attila Buchman, Ph.D., University of Baia Mare, Romania
Prof. Vlad Cehan, , Ph.D., "Gh. Asachi" Technical University, Iaşi, Romania
Prof. Laurenţiu Frângu, Ph.D., University of "Dunărea de Jos" Galaţi, Romania
Prof. Aurel Gontean, Ph.D., "Politehnica" University of Timişoara, Romania
Prof. Ioan Liţă, Ph.D., University of Piteşti, Romania
Prof. Ioan P. Mihu Ph.D., "Lucian Blaga" University of Sibiu, Romania
Assoc. Prof. Gheorghe Pană, Ph.D., "Transilvania" University of Braşov, Romania
Prof. Valentin Popa, Ph.D., "Ştefan cel Mare" University of Suceava, Romania
Prof. Dorina Purcaru, University of Craiova, Romania
Assoc. Prof. Adrian Tulbure, Ph.D., "1 Decembrie 1918" University of Alba Iulia, Romania
Gabriel Vlăduţ, Ph.D., Romanian Association for Technological Transfer and Innovation

Technical Committee

Committee Manager:
Assoc. Prof. Norocel Codreanu, Ph.D., "Politehnica" University of Bucharest, Romania

Members:
Eng. Constantin Barabaşa, Ph.D., "Gh. Asachi" Technical University of Iaşi, Romania
Eng. Marius Carp, Ph.D., "Transilvania" University of Braşov, Romania
Assoc. Prof. Emilian Ceuca, Ph.D., "1 Decembrie 1918" University of Alba Iulia, Romania

Assoc. Prof. Gabriel Chindriş, Ph.D., Technical University of Cluj-Napoca, Romania
Assist Eng. Bogdan Cioc, University of Piteşti, Romania
Assoc. Prof. Eugen Coca, Ph.D., "Ştefan cel Mare" University of Suceava, Romania
Assist. Eng. Cristinel Crăciun, University of "Dunărea de Jos" Galaţi, Romania
Assist Eng. Silviu Epure, University of "Dunărea de Jos" Galaţi, Romania
Assoc. Prof. Tecla Goraş, Ph.D., "Gh. Asachi" Technical University of Iaşi, Romania
Assist Eng. Claudiu Lung, University of Baia Mare, Romania
Lect. Eng. Alin Mazăre, Ph.D., University of Piteşti, Romania
Eng. Cătălin Negrea, "Politehnica" University of Timişoara, Romania
Lect. Eng. Marius Rangu, Ph.D., "Politehnica" University of Timişoara, Romania
Assist.Eng. Emanoil Toma, "Lucian Blaga" University of Sibiu, Romania
Assist.Eng. Liviu Viman, Ph.D., Technical University of Cluj-Napoca, Romania

European Consultants:
Prof. Zsolt Illyefalvi-Vitez, Ph.D, University of Technology and Economics, Budapest, Hungary
Prof. Pavel Mach, Ph.D., Czech Technical University in Prague, Czech Republic
Prof. Alena Pietrikova, Ph.D. Technological University of Kosice, Slovak Republic
Prof. Jerzy Potencki Ph.D., Rzeszow University of Technology, Poland
Prof. Nihal Sinnadurai, Ph.D., IMAPS Europe, ELC President
Habil Heinz Wohlrabe, Ph.D., Technical University of Dresden

Industrial Advisor Committee
Chairman:
Bogdan Gavril, Elinktron Technology SRL, Bucharest
Co- Chairman:
Cosmin Moisa, Continental Automotive, Timişoara

Members:
Tudor Dachin, Continental Automotive System SRL, Sibiu
Jan Galcescu, Epsicom SRL, Craiova
Florin Hurgoi, National Instruments Romania, Cluj-Napoca
Zsolt Mathe, Tehnologistic SRL, Cluj-Napoca
Gabriel Neagu, Electronica Azi, Bucharest
Mugurel Niculescu, Sytron Technologies Overseas, Bucharest
Mariana Poparlan, Simea, Sibiu
Emilian Stoica, Simea, Sibiu

Student Committee
Chairman:
Ruxandra Pricope, Electronist Student League President
Co-Chair:
Andreea Bonea, IEEE-CPMT "Politehnica" University of Bucharest SBC Chair

Members:
Bogdan Anton
Andreea Brodeală
Adrian Liţa
Cristina Marghescu
Bogdan Mihăilescu
Mihaela Pantazică
Adrian Pătraşcu
Sheila Abdulamit

Local Organizing Committee
Chairman:
Prof. Theodor Petrescu, Ph.D.
Co-Chair:
Prof. Paul Şchiopu Ph.D.

Members:
Prof. Gheorghe Brezeanu, Ph.D.
Prof. Vasile Lăzărescu, Ph.D.
Prof. Adrian Manea Ph.D.
Rosemari Fuică, Ph.D.
Ciprian Ionescu, Ph.D.
Ioan Plotog, Senior Researcher
Alexandru Vasile, Ph.D.
Andrei Drumea, Ph.D
Delia Lepădatu
Florentina Răduţă
Adina Ţapu
Mariana Pătuleanu
Silvia Ruba
Georgiana Dumitru
Gaudenţiu Vărzaru
Willi Ciszkowski
Teodor Mihăilescu

Welcome to the 20th Edition of the Student Professional Contest TIE – Design of Electronic Modules & Assemblies

TIE, the 20th

And the 20th edition of TIE arrived!

Started about two decades ago, within, Politehnica" University of Bucharest, Faculty of Electronics and Telecommunications, Electronics Technology and Reliability Department, as a student contest offered only to those belonging to the „Politehnica" University, TIE became year by year an important event for the Central and Eastern Europe in the difficult action of promoting electronic packaging topics focused on design of electronic modules and assemblies. The „travel" to the actual level was not an easy one, on the contrary, taking into account the economical and social environment of our country. But, step by step, the number of the participants increased, first joining the universities from Cluj-Napoca, Iaşi, Timişoara and Piteşti and, after that, over a few years time, involving practically all the Romanian universities teaching and doing research in electronics engineering.

An important milestone was the 17th edition, organized by University of Piteşti, when the TIE Steering Committee had decided to use English language in the next editions as the official language for the TIE event. The decision, taking into account the very good partnership with the IEEE-CPMT Society, Hu&Ro Joint Chapter, was a normal one, creating an open window to Europe and even worldwide. Now, three years after the TIE Steering Committee decision, TIE environment offers good opportunities for every student interested to compete, first of all with himself, in order to reach the professional designer status in the field of PCB. This recognition is today certified by the decision of the TIE Industrial Advisor Committee (IAC), composed by high level professionals coming from the industry.

When we say "twenty TIE" editions we see back a "long road that has generated sometimes a difficult journey" but, thanks to the involvement of

all participating universities from our region, each edition has represented a step forward in consolidating the prestige of the TIE event. Many years have passed since TIE became a "property logo" of technical academia involved in promoting electronic packaging issues in the education and research of Central and Eastern Europe, being not longer an attribute to those who initiated it in 1992, but to the all universities which take part today, and representing an guarantee for the futures editions. In the same time, the continuous involvement of IEEE-CPMT, Hu&Ro Joint Chapter, to promote the electronics industry requirements in education and training makes the TIE design subjects to be constantly "applications oriented" and "engineering linked".

Finally, it is necessary to highlight the enormous contribution of the numerous volunteers, teaching staff from partner universities, involved in the TIE Steering Committee and TIE Technical Committee. Without their valuable contribution it is very difficult to imagine the current level reached by the TIE event. To all, for what they have done for TIE, I am deeply grateful and I thank them very much.

I wish all the attendees to TIE 2011 a successful attendance.

Bucharest April, 10th 2011

Professor Paul M. Svasta, Ph.D.

Head of Center and TIE Initiator
Center for Technological Electronics and
Interconnection Techniques
"Politehnica" University of Bucharest
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Happy Birthday TIE!

TIE is already an established event focused toward growing students' professional aptitudes in the area of electronic modules design. The contest is a marker of the month of April each year, both for IEEE CPMT Hungary&Romania Chapter as well as IEEE-CPMT "Politehnica" University of Bucharest Student Branch Chapter. TIE is an event with international renown having been presented in IEEE Components, Packaging and Manufacturing Technology Newsletter and IEEE Region 8 News. At this anniversary edition, it is appropriate to project the TIE event on the IEEE firmament. This is why I will present 10 aspects that define these two entities today.

IEEE Today

- More than 375,000 members, including nearly 80,000 student members in more than 160 countries
- 324 sections in ten geographic regions worldwide
- 1,784 chapters that unite local members with similar technical interests
- 1,616 student branches and 452 student branch chapters at colleges and universities in 80 countries
- 38 societies and 7 technical councils representing the wide range of technical interests
- 390 affinity groups consisting of Consultants' Network, Graduates of the Last Decade (GOLD), Women in Engineering (WIE) and Life Members (LM) groups
- Nearly 1,300 standards and projects under development
- Nearly 2 million documents in the IEEE *Xplore*® digital library
- Publishes a total of 144 transactions, journals and magazines
- Sponsors more than 850 conferences annually

TIE Today

- More than 40 students take part in the final stage of the competition every year. The 14 participating universities engage hundreds of students in local contests.
- The contest has its own set of rules that promotes ethical principles

- In the final stages of the contest take part both bachelor and master degree students, boys and girls, qualified only based on their performances in the local competitions.
- The competitors' training is based on a thematic prepared by the Technical Committee and a reach bibliographic material.
- The subjects given are prepared in such a manner that they are independent from the performances of the used Cad instrument.
- The evaluation of the projects is public, enforcing this way a fruitful experience change between students
- The event in monitored by Industrial Advisor Committee (IAC)
- The top competitors receive, at the recommendation of IAC, PCB design certificates
- The workshop that takes place every year at the beginning of the competition brings to the students the latest novelties in the area of designing and producing electronic modules
- The event is sponsored by representative companies: CADENCE, Mentor Graphics, Altium, etc.

I am convinced that TIE is not just a contest through which students are classified, but an inner competition for each student, one that takes place over the years in order to get closer to the qualities of an engineer. Therefore, I wish all the participants good luck!

Professor Dan Pitica, Ph.D.

Chair of IEEE-CPMT Hu&Ro Chapter
Hear of Department of Applied Electronics
Technical University of Cluj-Napoca, Romania
Dan.Pitica@ael.utcluj.ro
http://www.ael.utcluj.ro/

TIE – the best-of-Europe IEEE-CPMT student event

Every year the best PCB CAD designer students from the area of the Central European Hu&Ro IEEE-CPMT Chapter get together to match their skills against each other, as well as, with the rapidly developing computer aided design techniques.

The innovative Electronics Interconnection Technology Design (TIE) one day hands-on real-time competition is really an unrivalled Component Packaging and Manufacturing Technology event in Europe, the best for undergraduates in electronics. The event comprises a day of workshops and another day of competition in the organization of CETTI of Politehnica University of Bucharest, the IEEE-CPMT Romanian Student Branch and the Hu&Ro Chapters, as well as, lots of sponsors who are interested in skilled designers for the European industry.

The workshops include lectures and discussions by professionals with the intention to give students insight into the practicalities of the outside world. Not only the competitors but other industrial engineers, scientists and professors attend the workshops.

On the second day the workshops are followed by the excellent student competition. Each undergraduate student competitor has to carry out a circuit design and layout project within four hours, under high time pressure. The design requirements are defined to the student competitors just before the competition begins. Each student is provided with a computer with a suite of design software and a high definition color screen. The students are required to develop a parts library, create component footprints, create a schematic and complete a layout. The adjudication is by small teams of experienced CAD designers plus anyone else who wishes to intervene, thus having a fully transparent process.

Some 50 students (both female and male) participate in the competition and year by year they display impressive skills. The prizes to the top three are financial scholarships to support their ongoing education. All the funds are received from sponsors. IEEE-CPMT offers free student membership for the winner.

The 20th TIE will be the third opportunity for a Hungarian group of students and me to attend this unique event. In the first occasion, the 18th TIE 2009 was organized in Galati, Romania, where – in addition to the interesting

workshops and the exciting competition – we enjoyed the warm hospitality of the professors and students of the Universitatea Dunărea de Jos, as well as, the nice panorama of the city along the bank of the unthinkably wide Danube. Last year, in 2010, it was our pleasure to visit the beautiful cultural capital of Transylvania, where our old friends, the team of Professor Dan Pitica from the Technical University of Cluj-Napoca hosted the competition. The most popular for ever competition was completed by an interesting excursion to the exceptional salt mine of Turda.

This year we are looking forward to participating in the jubilee 20th anniversary competition of TIE in Bucharest and to meeting our best friends and colleagues from CETTI of Politehnica University of Bucharest, headed by Professor Paul Svasta, the ever enthusiastic researcher and educator in the field of electronics design and packaging technology.

Prof. Zsolt Illyefalvi-Vitéz, Ph.D.

dr.techn (BME), CSc/PhD (MTA/BME), DHC (UPB)

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TIE 2011

In spring 1992, Professor Paul SVASTA and his team from the "Politehnica" University of Bucharest, thought to organize a contest to verify the engineering design capabilities for interconnection techniques in electronics of his students. It was the first TIE edition. Today this event arrived to its 20th edition and become the most disputed engineering student award in Romania. 12 domestic and 1 foreign universities are competing for the best award and best achievements for their students and the proof of the quality of their trainings.

Started as a local contest, the TIE annual event grew each year with new university and industry partners, and number of students participating from all around Romania. The interest is so big, that organizers had to organize pre contests at the locations of the involved universities, to select for the national level the best three from each location. And the best awarded students are disputed by the best PCB design and production companies located in our country. From 2009, the Hungarian Technical University of Budapest is constantly participating at the TIE contest.

But TIE is not only a place for contest; it is mostly a place for best practice sharing and long term friendship setting. University professors for electronics, from all around Romania and several European countries are gathering to this event to share experience and best practice. Professor Nihal Sinnadurai, IMAPS-Europe (International Microelectronics and Packaging Society) President and IEEE- CPMT Society representative, was so impressed about the quality and outcomes of the event, that he is not only constantly visiting TIE, but he proposed too to involve the support of IEEE for this award.

A special emphasis is put on the strong business environment involvement for the work evaluation, and endorsement of the contest themes, parameters of evaluation and final awards. The business environment involvement is mainly thought to ensure the input from real life for which any engineering education program is dedicated. So the students are confronted not only with the highest theoretical knowledge of their area of competences, but also with real problems they have to solve soon at their jobs.

Finally, during the years, TIE evolved from a simple student contest to one of the most complex events of the university engineering programs of Romania, bringing people from the specific electronics competence area, from all around the world together to set friendships, trust and future project for mutual benefit. It is very impressive to see what pleasure and enthusiasm animate the people, students, university professors, or business representatives at the welcome or during the event.

Bucharest, Romania April 10, 2011

Alexandru Borcea

President of ARIES
Romanian Association for Electronic and
Software Industry
borcea@aries.ro
www.aries.ro

APTE welcomes the 20th edition of the TIE student professional contest

The innovative Electronics Interconnection Technology Design (TIE) is an event that aims to assess students' knowledge level in computer aided design of electronic modules. The event comprises a day of workshops and another day of competition in the organization of CETTI of "Politehnica" University of Bucharest, the IEEE-CPMT Romanian Student Branch and the IEEE-CPMT Hu&Ro Chapter. In April of each year, more than 40 students from 12 academic centers in Romania, and BME-ETT Hungary compete to demonstrate their skills in designing electronic modules. In each edition, the Industrial Advisor Committee shall decide the participants who qualify to work in this field as professionals. Each contestant wins so, besides the experience of working under pressure of competition, a degree that can be presented to prospective employers. It was also established EPETRUN (Electronic Packaging Education Training and Research University Network), as an informal partnership network in order to promote electronic packaging topics with focus on computer-aided design in electronics.

Romania is no longer a low cost country, but the average cost, and joined the club of countries that not only assemble, but also designs. Now here we want to integrate activities from engineering to final product. The idea is that we must do more complicated products and bring in new projects. We need engineers in Romania. In the current global competition, industrial modernization and economic efficiency requires not only coordination of economic actors but also good cooperation with research institutes and innovation, with education at all levels. In this context TIE support human resource performance in electronics Industry.

Everything was made possible by continued support of sponsors, which has been with us these 20 years. We want the 20-year history to be continued with the same success in the future, and heartily congratulate everyone who made it possible.

Thank you very much!

PhD. Rosemari Fuica

Executiv Manager APTE

TIE 2011 Program

<table>
<tr><td></td><td>“Students” Track</td><td>“Steering Committee” Track</td><td>“Technical Committee” Track</td><td>“Guest” Track</td></tr>
<tr><td>08:30-14:00</td><td colspan="4">Registration – “Rectorat” Building, Main Hall</td></tr>
<tr><td colspan="5">April 14
ELAN / „Fii întreprinzător” series of workshops - “Rectorat” Building, Room AN034</td></tr>
<tr><td>09:00-11:15</td><td colspan="2">Mentor Graphics CAD Workshop</td><td rowspan="3">Technical session 1 - “Rectorat” Building, “Biroul Senatului” Room</td><td>Mentor Graphics CAD Workshop</td></tr>
<tr><td>11:15-11:30</td><td colspan="2">Coffee break</td><td>Coffee break</td></tr>
<tr><td>11:30-13:45</td><td>Cadence CAD Workshop</td><td>Steering committee meeting
“Automatica” Faculty, ED010</td><td>Cadence CAD Workshop</td></tr>
<tr><td>14:00- 15:00</td><td colspan="4">Lunch - “Rectorat” Building, 5th floor Restaurant</td></tr>
<tr><td>15:00-18:00</td><td colspan="2">International Workshop
„Advanced Materials for Emerging Electronic Packaging”
Room AN034</td><td>Technical session 2 - “Rectorat” Building, “Biroul Senatului” Room</td><td>International Workshop „Advanced Materials for Emerging Electronic Packaging”</td></tr>
<tr><td>18:00-19:30</td><td colspan="4">Student Technical Session - “Rectorat” Building, Main Hall
➢ Presentation of TIE 2010 subjects, Room AN034
➢ Set-up and checking of contest computers and CAD environments</td></tr>
</table>

	"Students" Track	*"Steering Committee" Track*	*"Technical Committee" Track*	*"Guest" Track*
19:30-20:15	**Dinner** - "Rectorat" Building, 5th floor Restaurant			
20:15-22:00	-	**Steering committee meeting** Conference Room, "YESTERDAY" Resort, Hotel Mezzanine	**Technical session 3** - "Rectorat" Building, "Biroul Senatului" Room	-

April 15				
07:00-07:30	**Breakfast** - "Rectorat" Building, Main Hall			
07:45-08:00	**Preliminary session of the contest Delivery and studying of subjects** "Rectorat" Building, Main Hall			
08:00-12:00	**TIE 2011 CONTEST** "Rectorat" Building, Main Hall		**Technical session 4** - "Rectorat" Building, "Biroul Senatului" Room	**TIE 2011 CONTEST** "Rectorat" Building, Main Hall
12:00-13:30	**Lunch** - "Rectorat" Building, 5th floor Restaurant			
13:30-18:00	**Evaluation of design projects** "Rectorat" Building, Main Hall			
18:00-19:00	**Evaluation of design projects** "Rectorat" Building, AN034	**Steering committee meeting** "Rectorat" Building, "Biroul Senatului" Room	**Evaluation of design projects** "Rectorat" Building, AN034	

	"Students" Track	*"Steering Committee" Track*	*"Technical Committee" Track*	*"Guest" Track*
19.00-20.00	**Awarding ceremony** - "Rectorat" Building, AN034			
20:00-22:00	**Gala dinner – "YESTERDAY" restaurant, Rouge Salon**			

April 16	
07:30-08:30	**Breakfast,** CETTI-ITA Technological Incubator, LEU Campus, E building
09:00-12:00	**Ending session, Presentation of TIE 2012 - Sibiu** **Final remarks** "Rectorat" Building, AN034 Amphitheater

Workshop: „Fii întreprinzător”
Rectorat AN034 - 14 Aprilie 2011

8.30 – 9.00	**Registration**
CAD - CAE - CAM Session	
9.00 –11.15	**Mentor Graphics: "How expensive is a prototype? Trends in printed board design"** **Mircea Slanina,** Account Manager **Catalin Iov,** Technical Marketing Engineer TRIAS microelectronics, Authorized Distributor of Mentor Graphics and Dowstream Technologies in South-Eastern Europe
11.15 – 11.30	**Coffee break**
11.30 – 13.45	**CADENCE: “OrCAD PCB Editor vs. OrCAD Layout - the OrCAD user paradigm”** **Marian Vlădescu, Ph.D.-** President and CEO ELSIX, Cadence / FlowCAD Local Partner in South-Eastern Europe
13.45 – 14.45	**Lunch break**
14.45 – 15.15	**Registration**
ADVANCED MATERIALS FOR EMERGING ELECTRONIC PACKAGING	
15.15 – 16.00	**“Status Quo 2011 on Lead Free alloys”** **Corné Hoppenbrouwers**, European Automotive Technology Manager, Cookson electronics Assembly Materials
16.00 – 16.15	**Coffee break**
16.15 – 17.00	**“Soldering processes in photovoltaic from the perspective of a solder manufacturer”** **Ralph Christ**, Customer Technical Manager Central Europe, Cookson electronics Assembly Materials
17.00 – 17.15	**Coffee break**
17.15 – 18.00	**“News in Stencil Technology”** **László Rédey**, Regional Sales Director - Eastern Region, Cookson Electronics Assembly Materials Managing Director Cookson Electronics Assembly

Top TIE 2010 - Recommended by the IAC* as PCB designer

Name	University
Dungă Tudor Dan	“Politehnica” University of Timisoara
Pică Zamfir	Technical University of Cluj-Napoca
Gross Péter	BME Budapest
Antonovici Dorin	University "Stefan cel Mare" of Suceava
Condrea Daniel	University "Stefan cel Mare" of Suceava
Lupuţ Cătălin	“Politehnica” University of Timisoara
Banciu Alexandru	“Politehnica” University of Bucharest
Fülöp Krisztián	BME Budapest
Tudose Mihai Liviu	“Politehnica” University of Bucharest
Burghiaua Mihai	University "Stefan cel Mare" of Suceava
Knizel Alexandru	“Politehnica” University of Timişoara
Pandelică Ovidiu	University of Piteşti
Caracaţeanu Cătălin	“Dunărea de Jos” University Galaţi
Ţibuleac Cătălin	“Politehnica” University of Bucharest
Blănaru Andrei	Transilvania University of Brasov
Malinetescu Adrian	North University of Baia Mare
Ungureanu Vlad	Transilvania University of Brasov

* *Industrial Advisor Committee*

A

B

C

D

E

Awarding Ceremony - TIE Contest 2010
A: Prof. Pitica, Prof. Sinnadurai, Marius Rangu (center - trainer of the winner), and Prof. Svasta with the winners Pica Zamfir, Dunga Tudor Dan, and Gross Peter
C: The Contest Cup and the Winner Cup
E: Prof. Pitica and Prof. Svasta with the Mention Award receivers

TIE Contest 2010 Cluj Napoca

TIE 2010
Participants from

"1 Decembrie 1918" University, Alba Iulia

Budapest University of Technology and Economics

"Dunărea de Jos" University of Galaţi

"Gheorghe Asachi" Technical University of Iaşi

"Lucian Blaga" University of Sibiu

North University of Baia Mare

"Politehnica" University of Timişoara

Technical University of Cluj-Napoca

Transilvania University of Braşov

University of Craiova

University of Piteşti

University "Ştefan cel Mare" of Suceava

"Politehnica" University of Bucharest

"1 Decembrie 1918" University of Alba – Iulia

http://www.uab.ro/

"1 DECEMBRIE 1918" University of Alba Iulia started on May 1991. This year is the 20th celebration of our University. At first it was the historical domain and economics and after ten years the industry and local firms required persons with technical skills. It was the moment when technical domain starts with Geodesy and Informatics.

Our Department manages the Informatics (bachelor and Master) and Applied Electronics (– bachelor).

In our University – *The Engineering curriculum* - provides specialized knowledge on: Electronic devices and circuits, analog and digital integrated circuits analysis and synthesis of electrical circuits, power electronics, embedded systems and micro-processors, sensors and sensor systems, data transmission and communication TV, automotive and medical electronics, industrial automation and other related disciplines.

Platforms used by students: OrCAD, Spice, Matlab, Simplorer, AutoCAD, DSpace, LabVIEW for analysis and design of analog and digital electronic circuits.

In "1 DECEMBRIE 1918" University one of the most important aspects provided is to motivate students through awards / internships offered by businesses, that involve the closer link between industry and universities and the students accomplished the importance of practice and good theory examples. Another aspect assured is to maintain and update the knowledge of those involved (teachers and students) in electronic technology design work.

Academic coordinators:

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Assoc.Prof.Adrian Tulbure, Ph.D.

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Budapest University of Technology and Economics

http://www.bme.hu/

The Department of Electronics Technology (ETT) has been amongst the leading research and teaching institutions in Hungary for decades in the areas of electronics materials, components and technologies, circuit module substrates and parts, electronics assembling technologies, electronics production management, quality and reliability, production informatics and enterprise information systems. As an integral unit of the Faculty of Electrical Engineering and Informatics (VIK) at the prestigious Budapest University of Technology and Economics (BME), the Department has turned out a steady flow of highly qualified experts for its more than 45 years history. Throughout this period it has participated in Hungarian and international research cooperation and has led the efforts in developing R&D relationships between university and industrial production.

The Department of Electronics Technology has always devoted its energy to the teaching and development of basic technologies used in manufacturing of electronic components, parts, devices and systems. At the same time, it is a basic principle of the Department to include the ever changing highest level technologies, quality management and production informatics into its curriculum.
We are proud that in the last years our student successfully participated in such international educational events like TIE, the competition of the best PCB CAD designer students of the European region. We are looking forward to the participation of our student team in the jubilee 20th anniversary TIE in Bucharest.

Academic coordinators

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"Dunărea de Jos" University Galaţi

http://www.ugal.ro/

Galaţi is a city in the eastern part of Romania, with 300,000 inhabitants. The university was established in 1974 and it has a very broad education area: engineering, sciences, medicine, economics, humanities, art and law. There are some 14.000 students in this university. Current research activities, also at the European level, are oriented to PCB simulation and design (both virtually on computer in classroom or laboratory and physical performance in practical activities and project), embedded systems and circuits, and biomimetic ultrasonic transduceres for sonar head applications.
Usually, the students who participate in the TIE contest (since 2008) are studying electronics and telecommunications engineering. They count about 250, among the 1000 students of the Faculty of Automatic Control, Computers, Electric and Electronic Engineering (Bsc, Msc and PhD). The students receive usual education in electronic technology; the knowledge useful for the TIE contest comes mainly from the courses of Computer Assisted Electronic Design and Technology of Electronic Devices.

The trainers of the student team are ass. Cristinel Crăciun and ass. Silviu Epure. The organizers are the dean of the faculty (prof. Dorel Aiordăchioaie) and the head of the Department of Electronics and Telecommunications (assoc. prof. Nicolae Mărăşescu). They helped the contest TIE 2009, who took place in Galaţi. The event was managed by prof. Laurentiu Frangu.

Academic coordinators

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“Gheorghe Asachi” Technical University of Iaşi

http://www.tuiasi.ro/

There are four departments in the Faculty of Electronics, Telecommunications and Information technology within the "Gheorghe Asachi" Technical University of Iasi: Fundamentals of Electronics, Applied Electronics and Intelligent Systems, Telecommunications and Mathematics with 150 faculty members and about 1000 students, Master and PhD students. The students of the faculty can compete in 9 student contests and participate in 5 student scientific meetings. The first contact the students have with the problem of electronic packaging is in their first year of study at Computer Graphics and Materials, Components and Passive Circuits; later on they learn the basics of computer aided PCB design when study Electronic Technology and Electromagnetic Compatibility in Power Electronics.

Academic coordinators

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"Lucian Blaga" University Sibiu

http://www.ulbsibiu.ro/

In recognition of Sibiu's certain potential as an academic center, the Ministry of Education decreed, on March, 5, 1990, the founding of a University encompassing five Schools: Letters, History and Law, Medicine, Food and Textile-Processing Technology, Engineering, and Sciences. On 12 May 1995, the University of Sibiu was granted the name of the distinguished Romanian writer and philosopher, Lucian Blaga.

Academic coordinators

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North University of Baia Mare

http://www.ubm.ro/

The impetuous development of Baia Mare, require the creation, in 1961, of the three-year Pedagogic Institute, with three faculties: Philology, Mathematics, and Natural and Agricultural Sciences, the first step towards the development of the Baia Mare higher education. The rapid evolution of higher education in Baia Mare was naturally followed by the creation, on October 1st, 1974, of the Higher Education Institute, with two faculties: the Faculty of Pedagogic Education, day courses, with 3 majors: Philology, Mathematics, Natural and Agricultural Sciences, and the Faculty of Technical Education, with 4 majors: Mines, Mining Technological Electromechanics, Nonferrous Metallurgy, Civil, industrial and agricultural constructions. In March 1991, through Governmental Decree, the Higher Education Institute becomes the Baia Mare University, and in 1996 it receives its present name of North University of Baia Mare. The North University of Baia Mare is a state institution for higher education and scientific research; it shares the ideas of the Magna Charta of European Universities (Bologna, 1988) and of the Lima Declaration on Academic Freedom and Autonomy of Higher Educational Institutions (Lima, 1988), being a member of the European Universities Association and of the International Association of Universities.

Academic coordinators

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Contestants

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"Politehnica" University of Timişoara

http://www.upt.ro/

Founded in 1920, Politehnica University of Timisoara is one of the first technical universities in Romania, currently gathering about 15000 students in 10 faculties. The TIE team comes from the Electronics and Telecommunications Faculty, where it operates the Electronic Technology and Testing Laobratories. The main topics of interest of the TIE team, related to Electronic Packaging, are PCB Design, Signal & Power Integrity and Thermal Management of Electronics.

Academic coordinators

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Contestants

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Technical University of Cluj-Napoca

http://www.utcluj.ro

Department R&D fields

- Power Systems
  - Power Supplies with Power Factor Correction
  - Power Line Communication for Energy Metering Equipment
  - High Voltage System for Electron Beam Evaporation Equipment
  - Solar Energy Conversion Systems
  - Charger Systems for Accumulators
- Monitor and Control Systems
  - Control for Automotive Systems
  - Control for Intelligent House
  - Electric Motors Control
  - Data Loggers for Energetic Systems
  - Data Loggers for Monitor the Hydroelectric Buildings (Dams, Electrical Plant Building)
  - Data Loggers for Medical Applications

Past TIE contestants – present position

- Liviu Viman, Monica Zolog, Raul Fizesan, Mihai Daraban – Technical University of Cluj Napoca
- Istvan Kovacs – Intel Portland USA
- Ferenc Mitruly – Infineon Germania
- Tudor Dachin, Zamfir Pica – Continental Sibiu
- Cornel Sortoc, Sabin Catana – Siemens Timisoara
- Cristian Groza – Microchip Bucuresti

Academic coordinators

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Contestants

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Transilvania University of Brasov

http://www.unitbv.ro/

The beginning and development of higher education in Brasov originate in the old cultural traditions and intense cultural climate of the city. Here the well known technical and scientific engineering activity, the artistic creation in the fields of folkloric literature and culture, as well as the intensive studies in the numerous schools of all levels, blend in perfect harmony.

The University of Brasov is born in 1971 through the merger of the Polytechnic and Pedagogical Institutes. Following the recommendation of the University of Brasov's Senate, the new name of the university becomes, in 1991, Transilvania University of Brasov.

In 1990 is founded the Electro-technical Faculty comprising three specialties: General Electrotechnics, Applied Electrotechnics and Electro-mechanics. The following specialties were next: Automatics and Industrial Informatics in 1995, Electrical Engineering and Computer Sciences (taught in English) in 2000, Telecommunication Sciences in 2001, Energetic Engineering in 2005, and Computer Sciences and Information Technology in 2007.

The premise of electronic packaging appeared in 1990 when the Applied Electronics speciality was founded, and through the ulterior development of the Telecommunication Sciences and Computer Sciences and Information Technology specialties.

Academic coordinators

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Contestants

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University of Craiova

http://www.ucv.ro/

The University of Craiova has 20 faculties and offers conditions of study to 32000 students, in various fields embracing 120 specialisations. The Teaching Package includes 3 stages of academic studies (BA, MA, and PhD) that are ensured by over 1000 teaching staff and high technological equipments.
The Faculty of Automation, Computers and Electronics of the University of Craiova has about 70 members of the academic staff, belonging to one of the following departments: Automation, Computers and Information Technology, Software Engineering, Electronics and Instrumentation and Mechatronics.
The department of Electronics and Instrumentation trains specialists qualified in designing, operating and developing electronic and communication systems, with applications in the most various industrial, research and domestic areas.
The Faculty of Automation, Computers and Electronics of the University of Craiova participates at the student professional contest TIE since 2010. The persons responsible for the students training are Eng. Vasile Brujan, Dr. Eng. Gabriela Canureci from SC IPA CIFATT Craiova and Prof. Dr. Eng. Dorina Purcaru.

Academic coordinators

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Eng. Vasile Brujan	vasile.brujan@ipacv.ro

Contestants

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Risnita Radu-Gabriel	BC	risnita.radu@gmail.com

University of Piteşti

http://www.upit.ro/

University of Pitesti has a 49 year old and was founded in 1962. The specializations in electronics came in 1985 and since then this area has developed continuously until today when under Electronic Faculty brand are accredited 4 specializations.
Our students are draw into the CAD design by the courses that follow under the direction of professor eng. Ioan Lita and assistant professor Alin Mazare, the holders of these courses. Beside these courses, the student teams from all classes make technical practice in TCAD laboratories where translate into practice various projects.
Then, in summer school, going training in PCB Design Solutions with licensed software design applications like Mentor Graphics – PADS and Cadence – OrCAD under the guidance of assistant professor Alin Mazare. Finally, the training is certified through participation in local stage of the competition TIE where first top three will participate to International student professional competition TIE Design of Electronic Modules & Microsystems.

Academic coordinators

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University "Ştefan cel Mare" of Suceava

http://www.usv.ro/

The Stefan cel Mare University is a modern institution with over 45 years of tradition in higher education. In 2005, the University adopted the principles of the Bologna Declaration (1999) and of the Magna Charta Universitatum. The University is located in northeastern Romania, in Bukovina, a region of scenic beauty with a strong focus on social and cultural tradition, a source of national pride and inspiration throughout the centuries. Since 1990, all nine faculties of our University have provided 3-4 years undergraduate programmes (undergraduate programmes in technical education take 4 years) and postgraduate programmes, including PhD. The 1.5 and 2-years Master's degree programmes provide in-depth study of subjects previously taken at undergraduate level or related to such fields. This degree may lay the compulsory foundations for subsequent three-year doctoral programmes.

Currently, there are 360 teaching staff (of which 161 are PhDs) at the Suceava University. The 17 international academic conferences and symposia organized here on a regular basis, the many books published at the Suceava University Press, the association with over 80 institutions of higher education of similar fields of academic research, all these bear witness to the evolution of the University of Suceava into a real Alma Mater Sucevensis. The University of Suceava is a member of numerous international scientific forums, among which the Alliance of Universities for Democracy, the International Association of Universities, the European University Association, l'Agence Universitaire de la Francophonie, International Council of Distance Education, EtherCAT Technology Group.

Academic coordinators

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Eng. Petrariu Adrian

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Politehnica University of Bucharest

http://www.pub.ro/

Politehnica University of Bucharest is one of the oldest engineering schools in Romania. The Faculty of Electronics, Telecommunications and Information Technology was founded in 1953. In this faculty, the Department of Electronics Technology and Reliability is focused to research and educational activities in the field of electronic packaging. CETTI operates, since its establishment in 1995, as an "Electronic Packaging Services and Research" Department within the POLITEHNICA University of Bucharest (UPB). As similar centers in the world, the main objectives of CETTI are to offer solid support in electronic packaging activities for innovative SMEs and to sustain educational and training for continuing education of the human resource involved in electronics industry. The center was initially focused, for students and engineers, mainly on printed circuit board - PCB CAD training activities. Today CETTI provides professionally, confidentially and nondiscriminatory a wide range of educational activities and services for electronic packaging (as counseling, training, research and information, human resource) and manufacturing. These are offered mainly to the business owners and managers - at an international standard, using the most advanced American and European expertise.

Academic coordinators

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TIE over the Years – Opinions

Personal perceptions and impressions about TIE - Costin Alexa Mihai

Wholehearted congratulations to the staff of Electronics Telecommunications and Information Technology Faculty, Center of Technological Electronics and Interconnection Techniques, for the enthusiasm, tenacity and perseverance to pursue the ideas to familiarize students with industrial-aided design systems.

The ideas discussed in the early 1990s with Prof. Paul Mugur Svasta, enthusiastically supported by Mr. Wolfgang Kraus, General Manager of the company Sysgraph - Austria and the company team EDCG (Electronic Design & Consulting Group), Bucharest, have resulted at that time in obtaining licenses for the CADSTAR academic program of the Racal-Redac Company. Now, after 20 years, I am extremely happy to see that effort invested in those years by the company Sysgraph, then Racal- Redac products distributor in Eastern Europe and editor of EDCG, distributor for Romania to support CETTI in training students in using CAD-CAM-CAE systems and organizing professional student competitions on this topic was the beginning of an activity continuously developed since within the Faculty of Electronics, Telecommunications and Information Technology and CETTI, which became a traditional event recognized nationally and internationally through participation in competitions of the representatives of Romanian and foreign universities.

Good luck to the 20th edition of the contest and with furtherance of training and development activities for students in the direction of modern design and manufacturing techniques.

Costin Alexandru MIHAI
General Manager
ELECTRONIC DESIGN &CONSULTING GROUP SRL
http://www.edcgi.ro

Personal perceptions and impressions about TIE –Doina Dumitrascu

"*I thought a lot about what I could tell to draw a conclusion on a contest humbly started that is with a PC with monochrome display. The TIE contest is like, now after nearly 20 years, building a house: the foundation was poured, with tenacity and even fear, a few years before '92.*
Little by little, the house was build by many enthusiasts: volunteers, like myself,students,and sponsors. We furnished it with luxury software: fromCa dstar running under DOS (for those who no longer know Disk Operating System) to Orcad, Protel, Mentor. Remember PCGerber?
And today we have reached performance, incredible speed, needle-size components, and design in a blink of an eye.
It seems a proud and beautiful house, finished. This "finished" I use to inspire the next generation: maybe new paths of engineering development should be built, roads that we would add to a building started 20 years ago."

Doina Dumitrascu

Inspector, Control Coordination Department,
Executiv Department Monitoring and Control ANCOM

Personal perceptions and impressions about TIE - Daniel Leonescu

I am proud to say that I am part of a selected group of individuals who have participated in TIE contest on both sides, as competitor and member of technical committee. I've been asked many times what role is more difficult to play, the student or the evaluator. I believe that's a wrong question: nothing is difficult if it's done with enthusiasm, devotion and professionalism. It is actually ... fun! This is the spirit which emerges from TIE contest.

Daniel Leonescu, PhD.
Team Leader, Analog Design Analog and Interface Products Division (AIPD)
MICROCHIP TECHNOLOGY

TIE contest 1993: 3rd place
TIE contest 1994: 3rd place

Personal perceptions and impressions about TIE – Mihai Savu -Winner of TIE 1999 Edition

TIE is a competition dedicated for students but the requirements are comparable to a competition dedicated for the professional PCB designers. The subjects proposed by TIE were always in trend with the latest technologies.
Beside that TIE could have a big impact on the competitor's future carrier, and I could tell that from my experience, as a winner of the year 1999 edition and founder my own electronic companies.

Mihai Savu
General Manager
SAMWAY ELECTRONIC SRL
http://www.samwayelectronic.com

Mihai Savu(first from left) and Mugurel Niculescu (third from left) at the end of TIE 1999 Edition, winer Mihai Savu

Personal perceptions and impressions about TIE - TIE contest standpoint

Bucharest, April 6, 2011

Dear Gentlemen,
I am honored to be part of the 2011 TIE Contest's Industrial Advisor Committee.
Some years back, as an Automatic Control student, thus a bit of an intruder in a world speaking a language only partially similar to my own, I was attending with genuine interest the courses held by Professors Paul Svasta and Norocel Codreanu at the Faculty of Electronics, regarding them as one of the too few (back then) and so much needed bridges across the gap between academia, particularly students, and industry.
The TIE Contest was also in its childhood years, yet even then it proposed subject matters which could have easily found a place among applied research themes in the electronic industry companies of the time.
I am now in a situation where, holding an active role in such a company of a present day where the complexity of problems has dramatically increased, I can regard with sincere appreciation the evolutionary path of the contest, which is that of intense professionalism. The number of industrial expertise clusters from within the Romanian higher education system has progressively increased; and CETTI, which to my knowledge has been permanently active in building a functional interface between the industry (both as business environment as well in terms of technical capability), educational institutions from Romania and abroad and youth finding themselves midway between education and career, is a peak player in this respect.
In my opinion, the best way the Romanian educational system can produce graduates which are realistically connected to modern industry is precisely interfacing them with a research and manufacturing environment as early as possible, together with the intensive usage of the design and project/product management tools starting from the first University years. If we are to examine the level of subjects in last years' TIE Contests, we will find these requirements to be fulfilled and fortunately complemented by a rigorous reference to the IPC field standards.
I believe that all knowledge gathered and exercised in this contest is of a formational nature, introducing the future engineer not only to execution

bits and pieces, or "tips and tricks" which are typical to a PCB designer, but rather to much more important aspects, such as the system overview, or the understanding of a process flow demanded by a particular design and subsequent task planning.
I wish the best of success to this year's TIE Contest participants.
Sincerely,

Mugurel Niculescu
Technical Director SYTRON TECHNOLOGIES OVERSEAS
(http://www.sytron.ro)

Personal perceptions and impressions about TIE - Cosmin Moisa

"If I am to paint a picture of how I and the company I work at, Continental Automotive, got involved in "TIE –Techniques for Interconnections in Electronics", I have to go back to the year 2000. Then I was a student in the first year of college in Electronics, at "Politehnica" University of Timisoara, and I was proposed a technician position under the guidance of late Prof. Horia Carstea. My future seemed to be decided, but only the first chapter in the lessons of life began to unfold.

In 2002, I and Lect. Marius Rangu, who was then also a student, participated in TIE Bucuresti. We met there people filled with exhilarating passion for electronics. The next editions of TIE further expanded this horizon. Meanwhile, there was a growing interest in the field of Electronics Packaging and I had the chance to attend related events, like the one concerning high-performance PCB, train the trainers held in Sofia. I had the pleasure of bonding with the people who organized the events, with colleagues from UPT or from other universities; in time, these connections proved to be fruitful.

The chance to apply all the knowledge that I gathered these years came when I had to accomplish a diploma paper. For this I applied, through Prof. Ivan Bogdanov, at the Fraunhofer Institute, in Stuttgart, Germany. On my returning home, I got employed at Siemens VDO, now Continental Automotive. Here I could see a milestone of my technical road. The chance was that I was the first hardware team member in the fast growing department of board instrumentation. Now I could see the importance of all the previously acquired connections and the reward was the consolidation of a PCB group, in 2008-2009, beside the applied electronics group, which was already built. The TIE framework indicated a high competence level. I was pleasantly surprised to meet colleagues from different universities who had the chance to work together with dedicated teachers involved in TIE. It was no doubt that Continental Automotive had only to gain by its cooperation with TIE.

In 2010, Continental Automotive sponsored the event, taking the first step towards a long term collaboration. Together with colleagues from Sibiu, myself and Mihai Petric, the PCB group coordinator were actively involved in the event and we could offer the participants a glance at how electronics

is applied and which are the related job offers. The event proved to be prolific and full of maturity. The organizing was worthy of praise for the scale of the event, but also for developing a topic consistent with the pragmatic implications. The topic proposed for solving impressed by transparency, conciseness and level of detail required. In addition, there was a major step ahead by focusing on functional and constructive details of the subject, which were similar to industry requirements. The students who participated also proved their competitive potential.

This year, we discovered that among the employees of Continental Automotive, in Timisoara, Iasi and Sibiu locations, there are over 25 colleagues who formerly won an award in TIE, be it local or national. By our active involvement, we hope to give to the next generations of hardware engineers the chance to apply their electronics knowledge in the vast field which is the automotive industry.

Thanks to Prof. Paul Svasta, Continental Automotive is at this time represented by two members in TIE- IAC, Industrial Advisor Committee: myself and Tudor Dachin, from Sibiu. Our goal is support the outlined technical direction, which is one synchronous with the needs of the industry in which we work. "

Cosmin Moisa
Group Leader in Electrical Engineering,
CONTINENTAL AUTOMOTIVE

Awarding ceremony TIE 2008 Pitesti

Personal perceptions and impressions about TIE – Gheorghe Pana

My participation to this event was a turning point in my professional activity. It was one of the two very important events that gave more meaning to my professional development. First, chronologically, was the one in which Prof. Gheorghe Toacse entrusted me with teaching the class of Analog Integrated Circuits. The second milestone was on the 6th of March, 2008 when, after the agreement between Prof. Paul Svasta and Prof. Iuliu Szekely, the Head of Department, I went to Bucharest and got acquainted with CETTIs team' activities.

My first participation to TIE in 2008 in Pitesti showed me how much I needed to learn. Only in 2009 I managed to use OrCAD Capture, and after almost a year I became accommodated with OrCAD Layout. For this year's competition I have succeeded for the first time to do extra training with about 20 students and, on the last Saturday of March, my colleague Eng. Marius Carp and me organized the local stage of the competition with seven of them.

I am very happy to be part of the TIE team. It is composed of humble talented professionals who accepted me as part of the team, for which I am very lucky to be member of the "TIE family".

Brasov, Romania April 9, 2011

Gheorghe PANA. Ph.D.
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http://vega.unitbv.ro/~pana/

Personal perceptions and impressions about TIE - Mircea Slanina

„*Years ago, as student, I have perceived TIE as an extraordinary opportunity to test my skills and compare them to those of other students. The experience of a contest, of competing for the best place, is very valuable and prepares the future engineer for the challenges of his professional career. The top-ranking contestants of the previous TIE editions confirm this with the positions they hold in companies from the electronics industry, proving nowadays students that they can successfully practice in the field they studied in faculty.*

Now, as engineer working in the electronics industry, I highly value this contest because it helps the consolidation of the electronic engineers' community and the dissemination of the latest technologies among them. It successfully fills the gap created by the absence of local tradeshows and exhibitions focused on electronic design. Also, the event keeps the electronics faculties and the industry connected, which is the normal state of things, as engineering creation cannot be achieved without prior education. The ever larger presence of industry representatives, with each TIE edition, is a good sign for the future and a confirmation the event is accomplishing its objectives.

In closing, I want to underline the magnitude of the TIE project – 20 years! – in addition to the above-mentioned values. If we think that some of contestants of this edition were not even born when TIE was being held for the first time, we start to understand the huge effort of professor Svasta and the CETTI team. Beside the effort, they also showed extraordinary tenacity and a deep belief that the promotion of electronic technology is an absolute requirement for the existence of a successful electronics industry in Romania."

Best regards,

Mircea Slanina
Account Manager
TRIAS microelectronics SRL

Personal perceptions and impressions about TIE –Marius Rangu, Winner of TIE 2002 Edition

From a participant's point of view:

A fresh (or future) faculty graduate doesn't usually have an impressive portfolio to impress a potential employer, most of the results he may be proud of being those obtained at the exams during the university studies (if he can be proud of them…). On the other hand, an employer with an open engineer position will most likely be overloaded by a large number of quasi-identical CVs and will have difficulties differentiating between fresh graduates. The TIE contest can fill this gap and prove useful both for the young graduate and the employer. A student which participated at the final stage of the contest will have an advantage over his equally un-experienced colleagues, which may attract the attention of a potential employer. On the other hand, if the employer has some knowledge about the specifics and the difficulty level of the TIE contest, may use such information to identify the candidates with proven potential. For such a mutual benefit to take place it is necessary that the participation at the final stage of the TIE contest to actually have an impact on the professional level of the participants, and in this sense the preparation for the final stage, taking place at the university, should play an essential role.

Such a pragmatic reasoning determined me, nine years ago, to involve myself in the TIE contest. Following the full chain of events, from local qualifications to winning the final stage, I found my reasoning to be mostly (but not entirely) valid.

- *Indeed, the effort invested in the preparation for the final stage had a significant impact on my professional level, from this point of view the benefit was higher that I initially expected.*
- *Indeed, my results at the TIE contest still stand today in my resume as a milestone, proving by early involvement, since the undergraduate level, in a specific area on electronic engineering.*
- *My hypothesis about the employer having "some knowledge about the specifics and the difficulty level of the TIE contest" prove to be not entirely valid, as at that time most companies I had contact with didn't have any idea about what TIE actually means. My case may be a particular one (I didn't apply for many jobs anyway, as I was hired by*

the University as soon as I graduated), but this is definitely a component that TIE needs: to be well known in the electronics industry so that the participants can indeed benefit not just at a professional level.

From a trainer's point of view:

The TIE contest only seems to be a competition as in fact it is an extension of the didactic activities taking place at the University. The key question is if this disguise of teaching as competition does really pay off and has any impact on the performance level of the participants. A few observations occurred from my training activities in the past years, related to the evolution of the students participating at the final stage of the TIE contest:

- *The quantity and quality of their questions will rise: if at the beginning of the preparation period for TIE they only have spurious curiosities and don't ask many questions, during the last days before the final stage we often spend hours just discussing technical problems. The TIE contest definitely has a positive impact on the student's involvement in electronic packaging and electronic engineering in general.*
- *The time spent learning will gradually increase: if at the beginning of the preparation period for TIE the students are accustomed to limit their academic activities mostly to what the curricula demands from them, at the end of the preparation period they come to spend most of their free time designing printed circuit boards. The ability to invest a concentrated effort to achieve a task, which is highly valued by employers but mostly inexistent at fresh graduates, is already developed by TIE participants.*
- *The professional level of the participants at the final stage of TIE is incomparable higher than their level at the beginning of the preparation period. If at the qualification stage they struggle to solve at least half of the subject requests, at the end of the preparation stage they are able to deal with much more complex requirements in the same amount of time. With the exception of particular aspects related to organization or CAD flow, the TIE participants are ready to integrate in design teams in the industry, a reality proven by many concrete examples.*

Concluding all the above, the answer to the earlier question is YES, it pays off. In most cases the participants at the final stage of TIE will significantly increase their professional level, not by the participation itself at the competition but by the preparation for the competition that takes place in the weeks preceding the event.

Lect.Eng. Marius Rangu, Ph.D
"Politehnica" University of Timişoara
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Interconnection Techniques in Electronics – TIE, the 20th edition

We may say that this student professional contest which is aiming the development of electronic design skills in CAE-CAD-CAM environments, especially in the field of PCB interconnection structures, already has a long and reach tradition.

This anniversary edition, organized by the Center of Technological Electronics and Interconnection Techniques Electronics, Telecommunications and Information Technology Faculty from Politehnica University of Bucharest, is held in the place where this contest was born, and it is marking up two decades of progress and continuous ascent.

Starting locally, the participants at the first editions being only the students of the Telecommunications and Information Technology Faculty from Bucharest, the TIE contest expanded gradually to national level, and then lately to international level, and starting with the XVIIth edition the official language that has been used was English. Although the foreign participants are for now only from the Eastern Europe, I am convinced that the expansion of the contest will continue, and at the future editions the competitors will be from the entire Europe.

Another characteristic of the TIE contest is the increase of the complexity of subjects from one edition to another, following up the continuous development in the electronics industry, whose dynamics is increasing more and more.

We may compare this evolution of the TIE contest with those of an engineer, who started as a young graduate having not so much experience, but who accumulated more and more knowledge, developing his abilities step by step, so that in the present he has an extensive experience, which he will increase further through a continuous deepening within a life long learning process.

A remarkable characteristic of the TIE contest is the equidistance shown along the time towards the CAE-CAD-CAM platforms used by the competitors, who were free to choose any design environment they considered they could handle the best in order to face the challanges of the contest, so they can reveal their design skills.

I would dare to make an analogy with the automotive domain: it is not enough to have Formula 1 car to win a race, but you need also to know how to drive such a fireball, otherwise it is possible that another pilot with a less

performing car, but who knows it and handles it very well, comes out on the first place.

My perception about the TIE contest, through the light of my experience as design engineer and also as invited lecturer at the university, is that of a contest for engineers rather than a contest for students, because the professional training needed to be able to participate to it is provided only within the optional disciplines of study, and not within the mandatory disciplines from the university curriculum, at least this is the situation at Politehnica University of Bucharest. In other words, the competitors are forced to train themselves separately and supplementary in the field of PCB design, in the same way as an engineer is forced to complement the knowledge gained in the university in order to be able to solve various issues that he is facing as designer.

For this reason, I believe that universities should pay more attention to the disciplines of study that treat the PCB interconnection structures. In my opinion it would be necessary to introduce in the bachelor programs a discipline that treats the fundamentals of this domain, followed by extensive knowledge within the master programs.

I hope that this situation will change in the near future, because the knowledge about the PCB interconnection structures is mandatory for understanding the complex phenomena related to the proper operation of electronic modules and equipments from nowadays.

I want to congratulate all the organizers of the TIE editions so far, and I wish best of luck to the competitors of TIE2011!

With best regards,
Marian Vladescu, Ph.D.
President & CEO of ELSIX

Reasons why TIE is recommended for students

The TIE competition is a unique opportunity for a student to learn PCB design by experience. If you have practical skills of Computer Aided PCB Design, then it is a good start to measure these skills in a competitive atmosphere. The other participants are on the same level in their studies as you, plus their work experience does not exceed yours – unnecessary thrills or stage fright is minimal this way.

On the other hand, TIE offers an experience of challenge which fits world-level standards, and gives you a paper which proves, that you have competed against the best of the region, within the frame of an official IEEE event. This may prove unexpectedly valuable, when the young engineer compiles his first CV for a job interview, even abroad of his country. The flexibility of choosing your own custom-preferred CAD system gives you freedom to choose the best software which fits your practice and designing habits. The opening presentations give a taste of international workshops, seminars and conferences, thus these are also valuable parts of TIE.

TIE is also a good opportunity for networking, to meet new people, to meet internationally acclaimed professors, to make new friends. TIE is also a nice trip for a student from Hungary. Romania's spectacular nature, geography, flora and fauna provide beautiful experience. Visiting cultural centres of foreign cities is always a pleasure for the ones who like travelling. The hospitality of the organisers is always warm and friendly – all of us have felt really comfortable, whether it was a time of a rest, or a social event for all participants of the competition.

To sum up, TIE competition can be recommended for every undergraduate student. It gives a practical and cultural learning, and strengthens the competitive skills of professional work. This experience may be essential for an open minded student, who wants to expand his point of view, before going to work in the industry.

Attila Géczy
PhD student at BME-ETT
Member of TIE Technical Committee

TIE – the chance for changing the perception about the education in the faculties of electronics

The general objective of any contest in the education domain has two components: competition and performance. Some time has past since the moment when in almost all university's curricula have been introduced the discipline of computed aided design and so, the aptitudes and inclinations in this domain are valorised.

There are 20 years since "Politehnica" University of Bucharest has initiated this contest for deepening of some indispensable knowledge of modern electronics and for promoting the technical values in the field of Interconnection Techniques in Electronics.

This contest is a professional contest and is part of those activities at which the students can participate with additional notions that exceed the regular curricula, this notions been in accordance with a specific bibliography.

The contest was started on local plane but slowly has joined almost all universities which have study programs and specialization in electronics domain, from our country but not only.

What this contest offers to the participant students?

- *Apparently, the material prizes offered at the end of this contest are not very consistent but represents something;*
- *The participants to this contest are in an continuous competition; it is the competition for been the best or at least among the best;*
- *It is true that this contest offers not only to the winners but to all participants the motivation and the desire to profound study and improving in this domain.*
- *As any contest, also this one is a contest that stimulate very much the imagination and thinking or initiative spirit and other important abilities;*
- *It offers a new opportunity for assimilate new knowledge.*
- *The contest offers the motivation that is so necessary in the learning process and helps the development of talents, the abilities and the knowledge aiming the formation of the students from both points of view, professional and personal.*

- *The contest can have in this plane, at this moment, few shortcomings but through debate and effort of the all participants we hope to solve these problems.*

The conclusion can be only one. The contest Interconnection Techniques in Electronics represents a chance in the electronics practice and a chance for changing the perception about the education in the faculties of electronics.

Pitesti, April 10, 2011

Professor **Ioan Lita**, Ph.D.
University of Pitesti, Romania

Personal perceptions and impressions about TIE Gabriel Chindris

Dear Professor Svasta,
Following your advice to consider TIE's 20th edition as a good opportunity to take a step back to better see past editions, and also as a moment of objective assessment of the trajectory of TIE contest, please take into account the following thoughts.
Maybe one of the most valuable information related to PCB design that I have received over years was on the occasion of a TIE event many years ago (I was participating as observer and tech support), when one of the organizers of TIE, during a design workshop, repeatedly underlined that PCB design is not just a way of routing connections between components of an electronic system but, most of all, the process of creating a new component (the PCB itself) which has to be engineered by taking into account the inter-disciplinary aspect of interactions at the PCB level. I observed later, over years, that not only this theory is proven by practice, but also its meaning exceeds the strict limits of engineering. During the evolution of TIE contest, year after year, the interconnections routed by contestants for PCB components were mirrored, at a larger scale, by the interconnections between representatives of Universities and Industry gathered together by the event.
It is a common saying, when speaking of natural philosophy, that viability of a system can be directly related to its self-symmetry: the more its particular characters can be observed at any scale, the more viable it is. Creating an analogy, TIE contest evolution over the years has shown that the interest of all participants in designing most efficient connections between electronic components led, in a natural way, to a fractal-like propagation of connection effectiveness on a larger scale, over the entire TIE related processes. Thus, it was proven that the process of designing even the simplest connection, between two components, relies on an entire system of complex connections between students, teachers, engineers, Universities, Industry partners, etc.
Being a part of this fractal, when I am joining a TIE event, I know that each participant's action, regardless of size, will follow the same self-repeating shape at any scale: the most effective connection between two components.

When proving usefulness of a process, one usually might need math, statistics or experiments; for me it is simply enough if the process reflects a universal truth: self-symmetry.
Kind regards,

April 6,.2011

Assoc.Prof. Gabriel Chindris, Ph.D.

Cluj-Napoca

PS: I should have been rigorously exact on the full extent of the analogy with fractals: the fractal-like aspect should have been proven by the existence of a generating function, either iterative or recursive (we will exclude randomness). From my point of view, the generating function has to be the single person that started the event, and he is both iterative in a constructive way and recursive up to the point of obstinacy: Professor Paul Svasta.

TIE Future Editions

2012 – “Lucian Blaga” University Sibiu

2013 – “Transilvania” University of Braşov

2014 – “1 Decembrie 1918” University Alba Iulia

2015 - "Politehnica" University of Timişoara

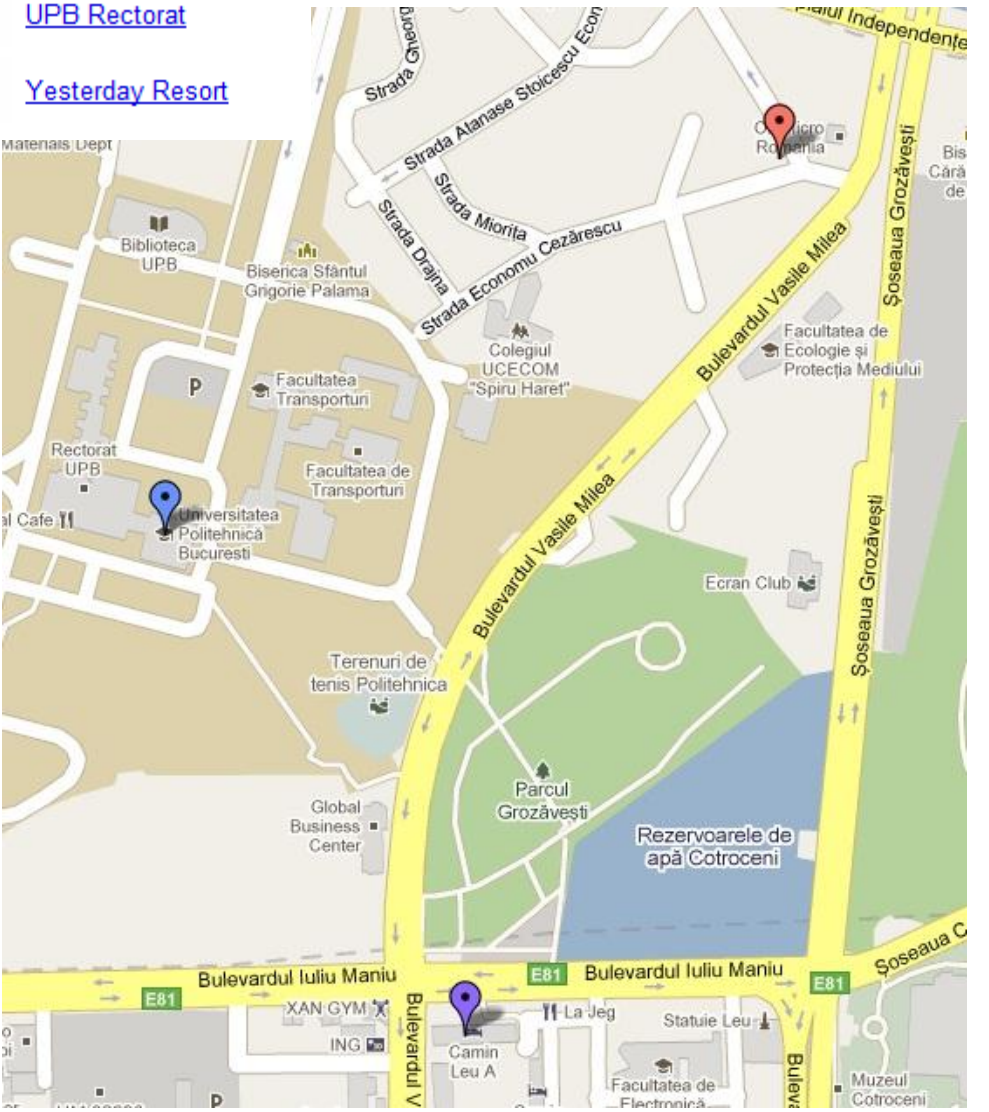
We are looking forward to seeing you at the next TIE editions!

The organizers wish GOOD LUCK to all TIE 2011 participants!

UPB-ETTI, Camin A

UPB Rectorat

Yesterday Resort

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