



"DUNĂREA DE JOS" UNIVERSITY OF GALAȚI
FACULTY OF AUTOMATION, COMPUTER SCIENCES, ELECTRONICS AND ELECTRICAL ENGINEERING



&

POLITEHNICA UNIVERSITY OF BUCHAREST

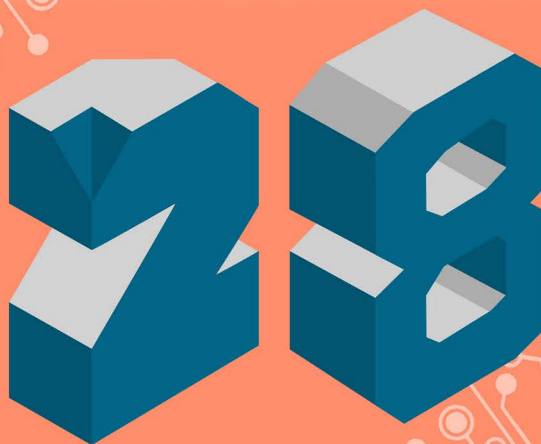
FACULTY OF ELECTRONICS, TELECOMMUNICATIONS AND INFORMATION TECHNOLOGY
CENTER FOR TECHNOLOGICAL ELECTRONICS AND INTERCONNECTION TECHNIQUES



INTERCONNECTION TECHNIQUES IN ELECTRONICS

THE SPRING CONVENTION OF ELECTRONIC PACKAGING COMMUNITY

The 28th Edition, Galați, România, 10th-13th April 2019



TIE

DESIGN OF ELECTRONIC
MODULES & ASSEMBLIES

www.tie.ro

A WAY to turn your HOBBY into PROFESSION



IEEE Electronic Packaging Society HU&RO Joint Chapter

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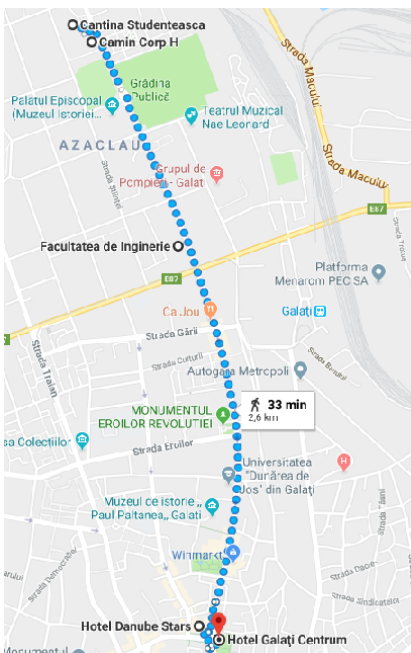


Association for Promoting Electronics Technology

Event location:

Dunărea de Jos University of Galați

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A WAY to turn your HOBBY into PROFESSION

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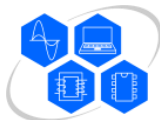
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TIE Event Program

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An invitation for TIE 2020

TIE 2020 - The TIE event comes home

Prof. Ciprian IONESCU, Ph.D., University Politehnica of Bucharest,
Faculty of Electronics, Telecommunications and
Information Technology
TIE 2019 Co-Chair

TIE Past, Present and Future Editions



1992-2002	University Politehnica of Bucharest
2003	Politehnica University of Timișoara
2004	Technical University of Cluj-Napoca
2005	Gh. Asachi Technical University of Iași
2006	University Politehnica of Bucharest
2007	Ștefan cel Mare University of Suceava
2008	University of Pitești
2009	Dunărea de Jos University of Galați
2010	Technical University of Cluj-Napoca
2011	University Politehnica of Bucharest
2012	Lucian Blaga University of Sibiu

2013	Transilvania University of Braşov
2014	Politehnica University of Timişoara
2015	University of Oradea
2016	Ştefan cel Mare University of Suceava
2017	Gh. Asachi Technical University of Iaşi
2018	University of Piteşti
2019	Dunărea de Jos University of Galaţi
2020	University Politehnica of Bucharest
2021	Technical University of Cluj-Napoca

Welcome to the Spring Convention of Electronic Packaging Community from This Part of Europe

Dear participants to the 28th edition of TIE event,

It is a great pleasure for me to have the possibility to welcome you, in Galati, one of the major port on the Danube river. Here, for a few days, are coming together representatives from the electronic industry and academia to evaluate and discuss the performance of students educated and trained in faculties round of Romania. In fact, the event represents a perfect environment for qualifying the students' skills and knowledge, the future electronic engineers according, with the industry requirements, according with the reality of their future professional lives. The topic of the qualification represents the design of the one of the most critical part contend by an electronic module. I mean the interconnection structure (IS) of the components existing in an electrical schema. Known as PCB this component must be conceived according, by the designers, each time when an electronic module has to be created in concordance with the functional requirements of the product. This mean, that the PCB is a dedicated electronic component, being difficult to be find it in a product catalog of an electronic component's vendor. And taking into account that the electronic products are characterized by ubiquity, it is necessary to create the PCB as a unique electronic component, necessary for a certain application. But, this task, the PCB design, become, in the development chain of an electronic module, more and more complicated. This aspect of the high difficulty of the PCB design is trying to highlight the TIE event.

If you are looking to the electrical schema of the product, you will see only the standard electronic component and you will not see the PCB component, which bring all components of the schema into a functional entity. The PCB designer, like a sorcerer, using magic, or a painter or sculpture, her or him, create the IS. And, the TIE event purpose is to validate the artist! Each student who participate to the TIE trial and fulfill the industry requirements established by the TIE

Industrial Committee will receive the certifications their PCB design skills receiving the Certificate of Competence in PCB Design

The high-quality level of the TIE event has been assured by the tremendous effort of the organizers. Persons coming from, the university staff, industry representatives and NGOs did an excellent job to offer us, the TIE participants, all the needed condition for a friendly, pleasant and fruitful environment.

Finally, I have to thank all TIE participants (organizers, students, committees) for their commitments and I wish good luck to this edition and to the next many, many editions.

Bucharest, April 10, 2019

Prof. D.h.c. mult. Paul SVASTA, Ph.D.

TIE Initiator

Head of Center for Technological Electronics and
Interconnection Techniques,

Faculty of Electronics, Telecommunications and
Information Technology,

University Politehnica of Bucharest

President of Association for Promoting Electronics
Technology



Previous TIE Winners



Year	Name	University
2018	Goglea Alexandru Nicolae	University of Pitești
2017	Cojocariu Gheorghe	Ștefan cel Mare University of Suceava
2016	Voina Radu	Technical University of Cluj Napoca
2015	Luchian Teodor	Ștefan cel Mare University of Suceava
2014	Grigoraș Eduard	Ștefan cel Mare University of Suceava
2013	Bostan Adrian	University Politehnica of Bucharest
2012	Aldea Alin	University of Pitești
2011	Precup Călin	Politehnica University of Timișoara
2010	Dungă Tudor Dan	Politehnica University of Timișoara
2009	Răducanu Bogdan	University Politehnica of Bucharest
2008	Oșan Adrian	Politehnica University of Timișoara
2007	Tamaș Cosmin Andrei	University Politehnica of Bucharest
2006	Moscalu Dragoș	Gh.Asachi Technical University of Iași
2005	Andreiciuc Adrian	Politehnica University of Timișoara
2004	Berceanu Cristian	Politehnica University of Timișoara
2003	Munteanu George	University Politehnica of Bucharest
2002	Rangu Marius	Politehnica University of Timișoara
2001	Toma Corneliu	University Politehnica of Bucharest
2000	Vlad Andrei	University Politehnica of Bucharest
1999	Savu Mihai	University Politehnica of Bucharest
1998	Alexandrescu Dan	University Politehnica of Bucharest
1997	Gavrilaș Cristian	University Politehnica of Bucharest
1996	Vintilă Mihai	University Politehnica of Bucharest
1995	Ștefan Marius Sorin	University Politehnica of Bucharest
1994	Bucioc Mihai	University Politehnica of Bucharest
1993	Teodorescu Tudor	University Politehnica of Bucharest
1992	Teodorescu Tudor	University Politehnica of Bucharest

Spring in Galați

TIE and TIE^{Plus} National Competition Finals will be hosted in 2019 at Dunărea de Jos University of Galați. We may as well imagine how Danube gathers at Galați not only the waters from the entire land of Romania, but together with them the energizing sources of great performance in the field of PCB Design. Walking throughout the Galați Danube promenade we may discover waves coming from the Criș rivers (University of Oradea), River Someș (Technical University of Cluj-Napoca), River Bega (Politehnica University of Timișoara), River Mureș (1 Decembrie 1918 University of Alba-Iulia), River Olt (Transilvania University of Brașov, Lucian Blaga University of Sibiu), River Jiu (University of Craiova), River Argeș (University of Pitești), River Dâmbovița (University Politehnica of Bucharest), River Siret (Ștefan cel Mare University of Suceava), and River Prut (Gheorghe Asachi University of Iași).

By using our imagination, with every dinghy we see floating on this great river, we may think of all the students who participate in this competition in the attempt of finding their professional destiny.

Wishing everybody great success!

Professor Dan Pitică
Technical University of Cluj-
Napoca



Dear participants and guests,

On behalf of the local organizing committee, I am delighted and honored to welcome you all to Galați, for the 28th edition of TIE contest hosted by Dunărea de Jos University of Galați.

Galați city is located in the eastern part of the country, on the left side of the Danube River, being a crossroad between the historical regions of Moldavia, Muntenia and Dobruja. Although it is dominated for many years by heavy industries, the city is also an important academic center. Dunărea de Jos University of Galați was founded in 1948, and it is the biggest university in the region. At present, Dunărea de Jos University of Galați has 14 faculties and more than 12000 students.

Over time, sustained and hosted by universities and with large support of industry by well-known companies, TIE event has grown every year with new and challenging topics in the field of electronic packaging. It became a high-profile well-known manifestation, and an important link between academia and electronics industry, through the students and for the students.

The local organizing committee hopes that TIE 2019 will be a new successful step in the TIE story.

Welcome to Galați!

Prof. Viorel NICOLAU, Ph.D.
Dunărea de Jos University of Galați
Electronics and Telecommunication Department
TIE 2019 Event Director



TIE 2018 University of Pitești

It has been 10 years and the University of Pitești has been organizing TIE again. A maximum challenge from the organizer because TIE is an event that has evolved year after year with the involvement of the industrial environment and thus starting from the basic competition, where each student has to edit an electronic scheme and design his electronic PCB, **TIE^{Plus}** the stage of excellence of TIE, where competitors using advanced simulators must justify the choice of design solutions in front of an international commission, as well as two Workshops „Virtual Prototyping, Design, Validation and Manufacturing of High-End Products" and „Partnership for Education". In addition to all these events that together make up the new TIE format, another challenge was to provide a generous space event for the sixteen companies, sponsors of the whole TIE event, to present their profile, achievements and offer for a new start in each student's career. Managing all of the above activities would not be possible without the involvement of the industrial environment both as a sponsor but also as a co-organizer, but also of the entire academic community within the faculty. So, I want to thank all those involved in this great event "TIE 2018". As a conclusion, the TIE event asks the organizer: availability, resistance to stress, creativity, cult of well-being and much professionalism.

I hope the University of Pitești has shown these things, and the TIE 2018 event has been a success. And I can only wish them great success in organizing the event TIE 2019 to our friends and colleagues at Dunărea de Jos University in Galați!

Assoc. Prof. Alin-Gheorghiță MAZĂRE, Ph.D.
University of Pitești



TIE^{Plus}, a physical challenge

Going back to 2015, when I participated at TIE^{Plus} first edition, I can precisely remember the moments before getting in front of the jury. My legs started shaking, my voice as well, all these while trying to add the final touches to my presentation. Everything changed when I heard my name being called, suddenly I calmed down, my thoughts were focused only on one thing: to prove my understandings to the evaluators.

The experience I had with electronic design simulation was close to nothing at that time. Nonetheless, I got really motivated to join the challenge as I found that the contest essentially requires the use of physics notions and analytical skills to understand and describe an electronic system.

I soon realized how good it felt to be in such a place, surrounded by respected academic figures, experienced industry engineers and positive vibes. How can a student benefit from such events is almost self-explaining: you have the chance to ‘validate’ yourself in front of established professionals, you could meet your future employer, you can establish long lasting friendships, it is up to you to get the most out of this experience.

My ideas quickly aligned with the TIE^{Plus} philosophy and in the following years I became an active supporter of the event, currently being a member in the technical committee of the contest.

All of these would have not been possible without the wonderful people I came across during these years, both from industry and the academic environment, therefore I would like to thank to everyone supporting the TIE culture.

Timisoara, 11.04.2019

Marcel Manofu

Signal & Power Integrity Engineer
Instrumentation & Driver HMI

Continental Automotive Romania
marcel.manofu@continental-corporation.com



TIE – the bridge between theory and real life projects

Although in my student days I didn't participate at the TIE contest, I was lucky to find a job in this field, with an interest driven mostly from the TIE course held by Prof. Norocel Codreanu. I still remember the most valuable life lesson from one of his classes that an engineer doesn't have to know everything by heart but know where to look for the information.

While this statement seems simple at first, I have seen a lot of people that struggle to find answers to unclear goals. This is where the TIE contest plays a big role in familiarizing the students with the real life needs and jargon of the industry that is most often missing from the school courses. The design challenges are gradually increased from course to local and to the national contest and while there are a handful of prize winners, all of the participants win a valuable experience. The real design challenges get defined here and they have a base to build their knowledge on and do that google search on something meaningful.

I love the fact that year after year the industry has come up with interesting design challenges that are based on actual products and that there is an increased accent on individual creativity by continuously adjusting the subject workload, so the participants have time to go through all the design requirements and not bog down at the schematic level.

Best wishes to all the participants and enjoy the experience!

Bogdan Popescu,
SR Hardware Engineer,
Microchip Technology
Bogdan.Popescu@microchip.com



TIE^{Plus}. Extend your reach!

TIE^{Plus} is an opportunity for students to gain a broader perspective on state of the art technologies. The subject of the contest outlines electronics industry demanding topics, such as thermal design, signal and power integrity.

Contestants from undergraduate students to doctoral researchers compete one against each other in a challenging environment where you can share ideas with participants having different levels of experience. Solving the subject implies both analytical and creative abilities.

Every student which builds up a solution has the chance to discuss it in a live confrontation with the technical committee, which serves multiple purposes. It not only enhances your own understanding of the topics studied but it also allows you to get noticed. This by itself is a winning situation for each contestant, as it can get you your next job.

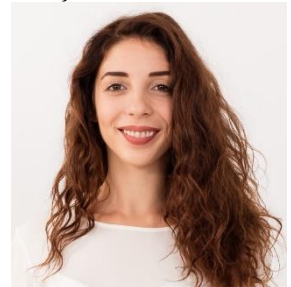
The experience from TIE^{Plus} contest taught me that what matters most when learning a new, ambitious topic is the persistency of effort. Without persistency, I think all isolated learning attempts would be negligible. Therefore, I encourage the students who want to participate at TIE^{Plus} to start studying in advance, and don't rely on last minute inspiration.

Timișoara, 26.03.2019

Andreea-Luminița TASNADI
Signal Integrity Engineer
Virtual Prototyping Electronic Design
Instrumentation & Driver HMI

First place at TIE^{Plus} contest 2018
Technical University of Cluj-Napoca

Continental Automotive Romania
andreea.tasnadi@continental-corporation.com



From a student to a Winner

First of all, I would like to thank all those who have supported me in order to win this contest, especially to Assoc. Prof. Dr. Ing. Alin Mazare, who has seen a potential in me and has helped me to capitalize it, to my mentor and friend Burciu Catalin who trained me to win this contest and all my colleagues in the TIE Team.

To achieve the best results, a lot of ambition, perseverance and much study was needed. I formed the base at the course of interconnection in electronics at the faculty of Electronics, Communications and Computers in Pitesti, and I was mentored outside the class by the Assoc. Prof. Alin Mazare and Ing. Catalin Burciu. The winning of this contest and the experience gained in all the three competitions I participated in meant a lot for me. Through this contest I discovered the passion to design PCBs. Due to the fact that I caught the taste of the field and deepened both the theoretical and practical parts of this field, I managed to start my first career steps with Draxlmaier. Within this company, the first tasks I have successfully accomplished given that I have already internalized certain notions and practices. The next steps were easy to learn because I already had a built base.

The company managed to guide me on the path to the career I knew I wanted and helped me to realize that this is a good place for me, it is for the future and it helps to improve my skills every day. I am convinced that if all these factors were not on my side, I would not have been able to win this contest.

Good luck to all TIE 2019 participants!

Pitești, March 28th, 2019

Alexandru GOGLEA,
TIE 2018 winner,
DRÄXLMAIER Group



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Ranci KLESTI, Dunărea de Jos University of Galați
Bogdan Marian MANOLACHE, Dunărea de Jos University of Galați
Bogdan MARIN, Dunărea de Jos University of Galați
Vlad Cătălin NETEDU, Dunărea de Jos University of Galați
Dragos ONU, Dunărea de Jos University of Galați
Alin PĂUN, Dunărea de Jos University of Galați
Daniel STANCIU, Dunărea de Jos University of Galați
Stefan URSU, Dunărea de Jos University of Galați
Ștefan VOICA, University Politehnica of Bucharest

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Bogdan MIHĂILESCU, Association for Promoting Electronic Technology
Bucharest
Maria PĂȚULEANU, University Politehnica of Bucharest
Florentina STĂLINESCU, Association for Promoting Electronic
Technology Bucharest

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Cătălin NEGREA, Continental Automotive, Timișoara

Co-Chairman:

Prof. Norocel CODREANU, University Politehnica of Bucharest

Members:

Marcel MANOFU, Continental Automotive, Timișoara, Romania

Cosmin MOISĂ, Continental Automotive, Timișoara

Dan PITICĂ, Technical University of Cluj-Napoca

Paul SVASTA, University Politehnica of Bucharest

TIE^{Plus} Organizing Committee

Mihaela ANDREI, Dunărea de Jos University of Galați

Marcel MANOFU, Continental Automotive, Timișoara

Bogdan MIHĂILESCU, Association for Promoting Electronic Technology

Prof. Viorel NICOLAU, Universitatea Dunărea de Jos din Galați

Andreea-Luminița TASNADI, Continental Automotive, Timișoara

TIE^{Plus} Technical Committee Members

Mihai BURGHEAUA, Layout Engineer, Continental-OSRAM, Iași

Norocel CODREANU, University Politehnica of Bucharest

Danilo Di FEBO, Business Development, CST, Italy

Markus LAUDIEN, Lead Application Engineer, ANSYS, Germany

Marcel MANOFU, SI/PI Principal Eng., Continental Automotive, Timișoara

Răzvan NEAG, SI/PI Eng., Continental Engineering Services, Timișoara

Cătălin NEGREA, Continental Automotive, Timișoara

Camelia STOICA, EBU Technical Services, INAS, Craiova

Roxana VLĂDUȚĂ, SI Engineer, eSilicon, București

Radu VOINA, Digilent, Cluj-Napoca

TIE^{Plus} 2019 Registered Participants:

Cristian CAUNI, Technical University of Cluj-Napoca

Florin Alexandru DURUS, Technical University of Cluj-Napoca

Mihnea Nicolae DUMITRIU, Dunărea de Jos University of Galați

Anca GEAMBAȘU, Maritime University of Constanța

Marius MURARU, Gheorghe Asachi University, Iași

Romulus Andrei GHINCU, University of Oradea

TIE^{Plus} University Licensing Sponsors:



joins

The logo for SIMULIA, featuring a stylized blue 'S' followed by the word 'SIMULIA' in a bold, sans-serif font.



TIE 2019 Program

Wednesday, April 10

	<i>“Students” Track</i>	<i>“Technical & Industrial Committees” Track</i>	<i>“Steering Committee” Track</i>
14:00-15:00	Opening of Onsite Registrations for TIE & TIE^{Plus} – Main Hall D Building @ UDJ Galati		
15:00-15:30	Transport with organizer bus to ArcelorMittal Departure from University parking		
15:30-17:30	Industry - academia experience exchange – ArcelorMittal visit		
17:30-18:00	Transport with organizer bus to University Departure from ArcelorMittal parking		
18:00-19:30	TIE contest Online Bootcamp Review and Feedback session Room D02 @ UDJ Galati	TIE^{Plus} Technical meeting Room Y102 @ UDJ Galati	Steering, Industrial and Technical Committees meeting Room Y106 @ UDJ Galati
19:30-21:30	Welcome Dinner – First Club, Danube Stars		

Note: Items in the program marked with **bold** type represent **compulsory activities** for the given track.

Thursday, April 11

	<i>“Students” Track</i>	<i>“Technical & Industrial Committees” Track</i>	<i>“Steering Committee” Track</i>
07:15-07:45	Breakfast		
07:45-08:00	Registration of the participants Main Hall D Building @ UDJ Galati		
08:00-08:15	Welcome speech Room D02 @ UDJ Galati		
08:15-09:45	TIE^{Plus} CONTEST - 1st part Room D02 @ UDJ Galati		
09:45-10:00	Coffee Break Main Hall D Building @ UDJ Galati		
10:00-12:00	TIE^{Plus} CONTEST 2nd part Room D02 @ UDJ Galati		
12:00-13:00	TIE^{Plus} Networking and Show-room Main Hall D Building @ UDJ Galati	TIE^{Plus} Technical meeting Room Y102 @ UDJ Galati	TIE^{Plus} Networking and Show-room visit
13:00-14:30	Lunch – Student campus		
14:30-15:00	TIE^{Plus} – AWARDING CEREMONY Room D02 @ UDJ Galati		
15:00-17:30	Technical Workshop for Electro-Thermal Systems Management Room D02 @ UDJ Galati		
17:30-18:30	City Break - “Galați & Danube sighting”		
18:30-19:30	Dinner – Panoramic restaurant, Centrum Hotel		
20:00-21:30	TIE contest technical preparation Europa Room @ Danube Stars		Steering committee meeting Venus Room @ Danube Stars

Friday, April 12

	<i>“Students” Track</i>	<i>“Technical & Industrial Committees” Track</i>	<i>“Steering Committee” Track</i>
06:30-07:15	Breakfast		
07:20-7:45	Transport to TIE contest		
07:45-08:15	TIE ^e contest preliminary activities		
08:15-12:15	TIE ^e CONTEST Europa Room @Danube Stars	Technical session Venus Room @Danube Stars	WORKSHOP “Strategic partnership for education” Aula Magna, AS Building @ UDJ Galati
12:30-13:30	Lunch – Student campus		
13:30-17:30	Assessment of the projects; litigations Europa Room @Danube Stars		WORKSHOP (includes assessment participation) Venus Room @Danube Stars
17:30-18:30		TIE ^e 2019 Result Evaluation Venus Room @Danube Stars	
18:30-20:30	TIE ^e - AWARDING CEREMONY – Europa Room @Danube Stars		
20:30-22:30	Gala dinner TIE 2019 - First Club, Danube Stars		

Strategic Partnership for Education

April 12, 2019, 09:00-13:00

Aula Magna, AS Building

09:00- 09:30 Registration of participants

09:30-09:50 **Opening of workshop**

Aurelia Florea, HR Manager Miele Tehnica, Brasov
Paul Svasta, Prof. Ph.D. University Politehnica of Bucharest, Association for Promoting Electronic Technology APTE

Gelu Gurguiatu, Assoc.Prof. Ph.D., Dean of Faculty of Automation, Computer sciences, Electronics and Electrical engineering, Dunărea de Jos University of Galați

09:50-10:05 **Brief summary of group actions**

Aurelia Florea, HR Manager Miele Tehnica, Brasov

10:10-11:00 **Session I: Relationship: Educational - Industrial environment - Concrete actions**

Chair: Aurelia Florea, HR Manager, Miele Tehnica, Brasov

Co-chair: Rodica Constantinescu, Prodean Faculty of Electronics, Telecommunications and Information Technology

- **“AR teaching options for System Understanding - For those who need to see it to better understand it”,** Razvan Boldis, founder “indexAR” – mobile AR Browser
- **Common projects,** Liviu Bogdan, Head of Training Center, ArcelorMittal Galați
- **“Robotor, Infotron” Pre-university education - Good practice sharing,** Aurelia Florea, HR Manager, Miele Tehnica, Brasov

- **“IEEE student membership – an important factor towards promoting engineering education”**, Eng. Victor Andrei Iriciuc, MS.
Chapter Chair, IEEE Politehnica University of Bucharest Electronics Packaging Society Student Branch Chapter

11:00-11:15 Coffee Break

11:15-12:45 Session II: Debate on a curriculum integrated into engineering

Chair: Prof. Dan Pitica, Ph.D., Pro-rector Technical University of Cluj-Napoca

Co-chair: Cosmin Moisa, Continental Automotive Romania

“Holistic Education – Educatie Integrata”, **Fabian Henze, Head of SWD Miele Brasov**

12:45-13:00 Q&A session, summary and further actions

April 10, 2019

TIE's First Online Edition Boot Camp:
“Layout Engineering: Sharpen Your Skills, Fast”
- Review and Feedback session -

14:00-15:00 **Registration**
Main Hall D Building @ UDJ Galati

18:00-19:30 **Session Chairs:**
Cristian GORDAN, Continental Automotive, Timișoara
Mihai BURGHEAUA, PCB Designer, Osram-
Continental, Iași

Trainers:

Aurelian BOTĂU, Thermal Designer, Continental Automotive, Timișoara
Marcel MANOFU, HSD Designer, Continental Automotive, Timișoara
Daniel GHEORGHE, Paul ONEȚIU, Layout Designers, Continental Automotive, Timișoara
Daniel GHEORGHE, Layout Designer, Continental Automotive, Timișoara
Gheorghe AMARIEI, EMC for Renault, București
Andrei FARAGO, Mech. Designer, VITESCO, Continental, Timișoara

Topics under discussion with TIE trainees:

- ➔ Introduction & Materials and Technologies
- ➔ Layout & flow
- ➔ Thermal
- ➔ Mechanical
- ➔ Signal and Power Integrity
- ➔ Electromagnetic Compatibility

Technical Workshop

April 11, 2019

"Electro-Thermal Systems Management"

- 07:45-15:00** *Registration*
- 15:00-17:30** *Chairs:*
Prof. Dan PITICĂ, Ph.D., Technical University of Cluj
Napoca, Romania
Cosmin MOISĂ, Continental Automotive, Timișoara
- 15:00-15:45** **"ANSYS Solution for electro-thermal simulation for Chip/Package/System applications"**
Camelia STOICA, EBU Technical Services, INAS SA
Lucian BODIN, MBU Technical Services, INAS SA |
- 15:45-15:50** **Q&A**
- 15:50-16:25** **"Signal Integrity Simulation vs. Measurement in electronic design flow"**
Marcel MANOFU, Signal & Power Integrity Engineer,
Instrumentation & Driver HMI, Continental Automotive
Romania
- 16:25-16:30** **Q&A**
- 16:30-17:15** **Fundamentals of Thermal Management for real Investigation of Electronic Modules & Systems based on Thermovision/Thermography**
Prof. Norocel Codreanu, Ph. D., Technical manager of
the TIE contest
- 17:15-17:20** **Q&A**
- 17:20-17:30** **Further steps: Professional Development Courses towards SIITME 2019, Cluj Napoca**

TIE^e contest technical preparation
Europa Room @Danube Stars

April 11, 2019
20:00-21:30

Session Chairs:

Prof. Norocel CODREANU, Ph.D., University Politehnica of Bucharest

Lecturer Mihaela ANDREI, Ph.D., Dunărea de Jos University of Galați

- Introduction / Technical preparations for the final
- TIE 2018 subject solution - Alexandru Nicolae GOGLEA, TIE 2018 Winner
- Set-up / checking of contest computers & CAD design tools

TIE 2019
DESIGN OF ELECTRONIC
MODULES AND ASSEMBLIES
Student Professional Contest

Awarding Ceremony

April 12, 2019 - Europa Room @Danube Stars

- | | |
|--------------------|---|
| 18:30-18:45 | Registration |
| 18:45-18:40 | Opening Ceremony Speeches:
<i>Prof. Viorel NICOLAU, Ph.D., University Dunărea de Jos of Galați, TIE 2019 Chair</i>
<i>Prof. Dr.h.c.mult.Paul SVASTA, Ph.D., University Politehnica of Bucharest, TIE General Chair</i> |
| 19:15-19:25 | State of the art TIE 2019
<i>Prof. Norocel CODREANU, Ph.D., University Politehnica of Bucharest, TIE Technical Committee Chair</i> |
| 19:25-20:00 | TIE 2019 Awarding
<i>Prof. Dr.h.c.mult.Paul SVASTA, Ph.D., University Politehnica of Bucharest, TIE General Chair</i>
<i>Prof. Dan PITICĂ, Ph.D., Technical University of Cluj Napoca, TIE General Academic Co-Chair</i> |
| 20:00-20:20 | PCB Designer Certification recommended by TIE Industrial Committee
<i>Dipl. Eng. Cosmin MOISĂ, Continental Automotive Timișoara, TIE General Industrial Co-Chair</i> |
| 20:20-20:30 | Looking Forward TIE 2020
<i>Prof. Ciprian IONESCU, Ph.D., University Politehnica of Bucharest, TIE 2020 Chair</i> |

TIE 2019 Gala Dinner (First Club, Danube Stars)

Signal Integrity Simulation vs. Measurement in electronic design flow

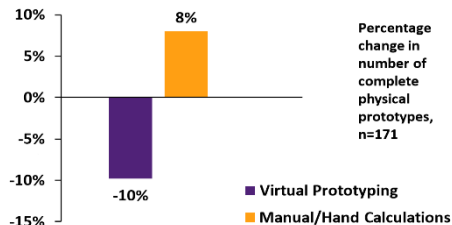
(Simulare vs. Măsurare privind Integritatea Semnalelor
în fluxul de proiectare al modulelor electronice)

Abstract: The evolving technology is continuously creating new challenges for the electronic design industry. To overcome them best-in-class companies rely on ‘virtual prototyping’ tools for design, validation and verification, as it decreases overall development time and helps in outperforming the competitors which rely on ‘physical prototyping’ only. Understanding the differences between simulation and measurement and how they complement is essential to the design process allowing for powerful insights into the performance of the electronic device under test.

Keyword: virtual prototyping, physical prototyping, simulation, measurement

Physical hardware measurement is considered to provide the real answer on the system performance. Nonetheless, the measurement equipment itself is made up of electronic circuits as well as software. The ever-increasing speed of signals require higher bandwidth probes with high impedance to minimize impact on the circuit operation. Furthermore, on-board measurement for some high-speed busses have become impractical, compliance being done using specialized test boards.

Simulation, on the other hand, allows the designer to ‘look’ anywhere in the circuit, on PCBs or inside ICs. Digital, analog, signal integrity, power integrity and thermal simulation are among the most used



Source: Aberdeen Group, May 2017

**Fig. 1 Virtual Prototyping reduces
Physical Prototypes**

simulation types in electronic design industry.

To accurately model the physical system, the designer should understand how the PCB fabrication technology impacts copper and dielectric properties. This cannot be achieved without the actual measurement which allow the designer to evaluate and improve its modeling approach.

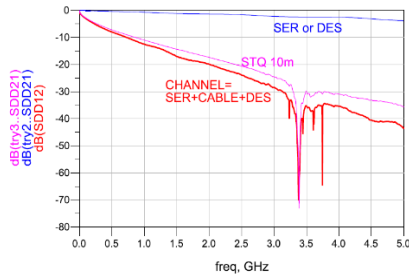


Fig. 2 Simulated differential insertion loss

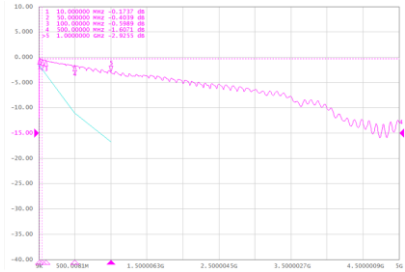


Fig. 3 Measured differential insertion loss

About the presenter: Marcel Manofu is the principal designer as part of the virtual prototyping team at Continental Automotive, Interior Division, responsible for high-speed digital interfaces and power distribution networks in electronic modules used for digital instrument clusters, central displays and driver monitoring camera products. In 2015 he won the 2nd place at TIE^{Plus} and throughout the following years he became an active supporter of the event, currently a member in the technical committee.

Timisoara, 11.04.2019

Marcel Manofu

Signal & Power Integrity Engineer
Instrumentation & Driver HMI

Continental Automotive Romania
marcel.manofu@continental-corporation.com



Fundamentals of Thermal Management for real Investigation of Electronic Modules & Systems based on Thermovision/Thermography

Abstract: The presentation covers the fundamentals of thermal management in electronics industry, for real investigations and measurements of electronic modules/systems based on thermovision/thermography. It offers the theoretical background for understanding the specific thermal aspects in electronics and infrared thermovision/thermography and presents various thermal maps from various fields.

Keywords: thermal management, real investigation, infrared, thermovision, thermography.

This presentation provides an introduction to predictive maintenance, preventive maintenance, non-destructive testing, monitoring of working conditions and product/process development supported by real thermal management. Topics include electromagnetic spectrum, location of IR, thermal imaging, elements that influence the IR image quality and the interpretation of thermal images. The talk emphasizes the relevant IR terminology, concepts, usage of thermal IR cameras, influence of the environment, obstacles, angle of view, and basics of real thermal patterns/maps optimization.

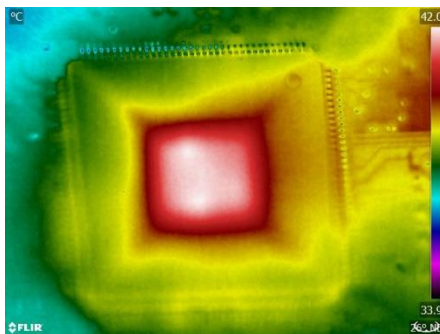


Fig. 1 QFP electronic component under IR real thermal investigation



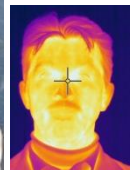
Fig. 2 IR vs. visual inspection, highlighting the importance of IR real thermal management

About the presenter: Norocel-Dragoş Codreanu, Ph.D., is full professor at “Politehnica” University of Bucharest (UPB), Romania, Faculty of Electronics, Telecommunications and Information Technology, Department of Electronics Technology and Reliability (TEF), being currently the executive manager of the “Center for Technological Electronics and Interconnection Techniques” (UPB-CETTI). He has received his formal education at UPB, obtaining his M.S. in radio-communications in 1988. He has started the cooperation with UPB in 1989, when he joined a UPB-IPA research lab, and fully joined UPB in 1992. He has received the Ph.D. degree in 1999, after a research period at Budapest University of Technology & Economics, Hungary. He is specialist in electronic packaging and advanced technologies, being focused on CAE-CAD-CAM for electronic modules/assemblies development, high-speed/high-frequency PCB/MCM-L design and manufacturing, full-wave electromagnetic modelling and simulation of planar structures, printed circuit board fabrication processes, electronic assembling technologies and heterogeneous integration (including Lead-Free issues, fine-pitch/high-density interconnections, package-on-package, system-in-package, thermal management, a.s.o.). Additionally, he has expertise in IR thermovision/thermography for electrical/electronic systems and in standardization for the electronics industry. He has been senior researcher or manager for more than 25 national and international projects focused on innovation, technology transfer, education and partnerships with industry. He has authored more than 150 scientific contributions/reports/articles and papers (author or co-author) and 11 text books (author or co-author) in electronic packaging.

Bucharest, 4th of April 2019

Prof. Norocel Codreanu, Ph. D.

Technical manager of the TIE contest



ANSYS Solution for electro-thermal simulation for Chip/Package/System applications

Abstract:

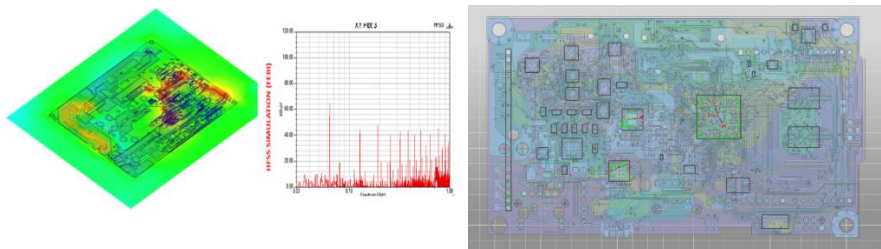
In simulation of today's electronic systems the interaction between printed circuit board, package and also the IC often needs to be taken into account in order to accurately simulate electromagnetic effects of Signal and Power Integrity as well as the EMC properties. In this presentation an overview about advanced electromagnetic and thermal simulation approaches will be given on a PCB with ANSYS tools.

Keyword: Electromagnetic Simulation, Signal/Power Integrity, EMC simulation, Thermal Simulation

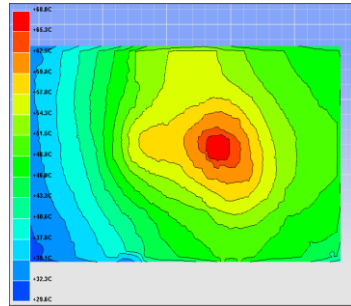
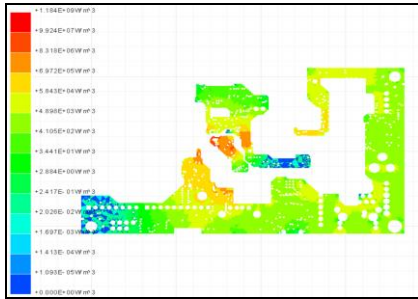
Design engineers who want to simulate Power Integrity, Signal Integrity or EMC effects of electronic circuits are faced with the situation that besides the geometric ECAD data of the board and package also the circuit setup and a representation of the transient signals are required.

It is critical in the design process of high performance electronics systems that these parts are combined well within a multiphysics simulation setup to form a realistic overall simulation model.

In the first part of this presentation the different ways of electromagnetic simulation like impedance and EMI/EMC scanning will be described.



Simulated surface currents and emissions from a PCB



The process of setting up a DCIR simulation for a PCB design and validate the Electrical and Thermal performance using ANSYS SIwave and ANSYS IcePak

During the second part will describe how to transfer data from an ANSYS SIwave analysis to an ANSYS Icepak Analysis, in order to understand the thermal impact from the DCIR on a PCB assembly and how to combine them together to form a valid simulation model. Heat sources are generated from high currents, current crowding, and high power loss regions in a PCB.

Understanding the heat transfer through the components of a PCB becomes increasingly important to determine whether thermal performance criteria are met.

April 11, 2019

Camelia Stoica

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Lucian Bodin

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INAS is Channel Partner of ANSYS Inc. since 1991

AR teaching options for System Understanding”

For those who need to see it, to better understand it.

Abstract: The Augmented Reality (AR) technology empowers you, with the help of a mobile device, to look at digital content as if it was real, as if it was in front of you.

We plan to use it in fields like engineering and medicine.

Keyword: Augmented Reality, learning, mobile app, engineering, medical.

Technology gives us super powers!

It enhances our ability to comprehend, to understand and test theoretical concepts or state of the art technology, to view processes that take place at a molecular level, to take a better look at our past or into the future.

Our weapon of choice is Augmented Reality (AR) and we plan to use it in fields like engineering or medicine.

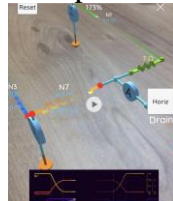
We’ve developed a mobile app (iOS & Android) that allows Authors (companies, public institutions, freelancers) to deliver in a matter of minutes content to their Audience.

All this is possible without the help of a team or the costs associated to it.

Our solution helps Authors get rid of dev & design costs, UX/UI know-how, time (6-12 months) needed to develop such an app capable to deliver a good AR experience.

We already got the opportunity to deliver content for engineers (automotive) on the occasion of:

ContiShowOff - Timișoara ‘18, where equipment developed by R&D department of Continental Automotive was presented through AR.



Also, we are working on a new project of delivering study material to the new recruits in order to better understand the theoretical aspects of engineering. We are using AR technology to envision the processes and the laws of physics that the theoretical courses are based on.

Our plans regarding using AR for learning purposes also include the medical sector.

The technology can bring in front of the audience visual information about:

- molecular processes that place in the body;
- the way human organs look and function;
- the way illnesses affect the body;
- the way our living habits influence our body;

Thus this content will help: student better prepare themselves; doctors better interact with their patients; kids learn about the human body;



Bucharest 2019

Răzvan BOLDIȘ

Founder

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Recognition by the industry of student competences in PCB design



TIE 2019 Certificate of Competence

The „PCB Designer” certificate is awarded, after evaluation, by the TIE IC (Industrial Committee) to selected contestants, as recognition of their high level of knowledge in the field of EDA and CAD for development of electronic modules/assemblies. The evaluation is based on the worldwide known and accepted IPC standards. The certificate is offered under the “umbrella” of the Association for Promoting Electronics Technology (APTE).

TIE Industrial Committee

Recommended PCB designers from 2010-2018

Participant Name	University	Year
Goglea Alexandru Nicolae	University of Pitești	2018
Gibu Marius	University Politehnica of Bucharest	2018
Ghineț Dragoș	Technical University of Cluj Napoca	2018
Postariuc Mihai	1 Decembrie 1918 University of Alba Iulia	2018
Radu Vadim-Florin	University Politehnica of Bucharest	2018
Horbuli Mihnea-Gheorghe	University Politehnica of Bucharest	2018
Miron Cristi	Ștefan cel Mare University of Suceava	2018
Zamfirică Vlad-Andrei	University of Pitești	2018
Condurache Alexandru	University of Pitești	2018
Maghiar Simon	University of Oradea	2018
Lengyel Karoly	Technical University of Cluj Napoca	2018
Butean Fabian Manuel	Politehnica University of Timișoara	2018
Neamți Petrică Ovidiu	Politehnica University of Timișoara	2018
Bilius Alexandru	Ștefan cel Mare University of Suceava	2018
Cojocariu Gheorghe	Ștefan cel Mare University of Suceava	2017
Horbuli Mihnea	University Politehnica of Bucharest	2017
Coca Octavian	Technical University of Cluj Napoca	2017
Anechiței-Diatcu Gavril-Cristian	Ștefan cel Mare University of Suceava	2017
Atănăsoaiei Marian	Ștefan cel Mare University of Suceava	2017
Condurache Alexandru	University of Pitești	2017
Igna Gheorghe	Politehnica University of Timișoara	2017
Postariuc Mihai	1 Decembrie 1918 University of Alba Iulia	2017
Goglea Alexandru	University of Pitești	2017

Ion Andrei	University of Pitești	2017
Mihalache Bogdan	Gh. Asachi Technical University of Iași	2017
Catrinoiu Constantin	Politehnica University of Timișoara	2017
Dumitrescu Octavian	1 Decembrie 1918 University of Alba Iulia	2017
Damian Brîndușa	University Politehnica of Bucharest	2017
Ghinete Dragos	Technical University of Cluj Napoca	2017
Radu Vadim-Florin	University Politehnica of Bucharest	2017
Zirbo Vlad	Technical University of Cluj Napoca	2017
Voina Radu	Technical University of Cluj-Napoca	2016
Cocan Nicolae	Lucian Blaga University of Sibiu	2016
Gibu Marius Andrei	University Politehnica of Bucharest	2016
Cojocariu Gheorghe	Ștefan cel Mare University of Suceava	2016
Dumitrache Florin	Transilvania University of Brașov	2016
Paranici Andras	University of Oradea	2016
Anechitei-Diacu Gavril	Ștefan cel Mare University of Suceava	2016
Racheru Alexandru	Politehnica University of Timișoara	2016
Cocan Alexandru	Lucian Blaga University of Sibiu	2016
Goglea Alexandru	University of Pitești	2016
Onofrei Șerban	Gh. Asachi Technical University of Iași	2016
Serghe Andrei	Ștefan cel Mare University of Suceava	2016
Iliescu Mihai	University Politehnica of Bucharest	2016
Căpățînă Mihai	Lucian Blaga University of Sibiu	2016
Teodor Luchian	Ștefan cel Mare University of Suceava	2015
Maranciuc Florin	Ștefan cel Mare University of Suceava	2015
Moise Mădălin	University of Pitești	2015
Paranici Andras	University Of Oradea	2015
Cojocariu Gheorghe	Ștefan cel Mare University of Suceava	2015
Butaru Traian	University Politehnica of Bucharest	2015
Marin Ionuț	University of Pitești	2015
Cocan Nicolae	Lucian Blaga University of Sibiu	2015
Burta Andrei	Politehnica University of Timișoara	2015
Dumitrache Florin	Transilvania University of Brașov	2015
Iliescu Mihai	University Politehnica of Bucharest	2015
Voina Radu	Technical University of Cluj-Napoca	2015

Eduard Grigoraș	Ștefan cel Mare University of Suceava	2014
Alexandru Mihai Ilie	Technical University of Cluj-Napoca	2014
Ovidiu Timoficiuc	Ștefan cel Mare University of Suceava	2014
Mădălin Moise	University of Pitești	2014
Teodor Luchian	Ștefan cel Mare University of Suceava	2014
Robert Dobre	University Politehnica of Bucharest	2014
Radu Ciocovanu	Gh. Asachi Technical University of Iași	2014
Daniel Gheorghe	Politehnica University of Timișoara	2014
Traian Butaru	University Politehnica of Bucharest	2014
Bostan Adrian	University Politehnica of Bucharest	2013
Bota Claudiu	Politehnica University of Timișoara	2013
Ilie Mihai	Technical University of Cluj-Napoca	2013
Timoficiuc Ovidiu	Ștefan cel Mare University of Suceava	2013
Olenici Alexandru	Technical University of Cluj-Napoca	2013
Sofilca Ionuț-Bogdan	1 Decembrie 1918 University of Alba Iulia	2013
Grigoraș Eduard	Ștefan cel Mare University of Suceava	2013
Chitic Mihail	Transilvania University of Brașov	2013
Petric Cristian	Politehnica University of Timișoara	2013
Cervis Alexandru	Maritime University of Constanța	2013
Moise Mădălin	University of Pitești	2013
Lăcătuș Daniel	University Politehnica of Bucharest	2013
Aldea Alin	University of Pitești	2012
Turdean Mihai	Technical University of Cluj-Napoca	2012
Andrieș Lucian	Ștefan cel Mare University of Suceava	2012
Avădanii Alexandru	University Politehnica of Bucharest	2012
Mares Mihai	University of Pitești	2012
Marin Marian	University of Pitești	2012
Burgheaua Mihai	Ștefan cel Mare University of Suceava	2012
Tănase Mihai	University Politehnica of Bucharest	2012
Boțilă Alexandru	Politehnica University of Timișoara	2012
Țibuleac Cătălin	University Politehnica of Bucharest	2012
Gordan Cristian	Politehnica University of Timișoara	2012
Antonovici Dorin	Ștefan cel Mare University of Suceava	2012
Ardelean Mihaela	Politehnica University of Timișoara	2012

Ștefan Andrei	University Politehnica of Bucharest	2012
Precup Călin	Politehnica University of Timișoara	2011
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Gordan Cristian	Politehnica University of Timișoara	2011
Burghea Mihai	Ștefan cel Mare University of Suceava	2011
Crăciun Gabriel	Politehnica University of Timișoara	2011
Țibuleac Cătălin	University Politehnica of Bucharest	2011
Bostan Adrian	University Politehnica of Bucharest	2011
Fiastru Bogdan	Technical University of Cluj-Napoca	2011
Aldea Alin	University of Pitești	2011
Andrieș Lucian	Ștefan cel Mare University of Suceava	2011
Caracățeanu Cătălin	Dunărea de Jos University of Galați	2011
Dungă Tudor Dan	Politehnica University of Timișoara	2010
Pică Zamfir	Technical University of Cluj-Napoca	2010
Gross Péter	BME Budapest	2010
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Condrea Daniel	Ștefan cel Mare University of Suceava	2010
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Blănaru Andrei	Transilvania University of Brașov	2010
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Ungureanu Vlad	Transilvania University of Brașov	2010

TIE 2019

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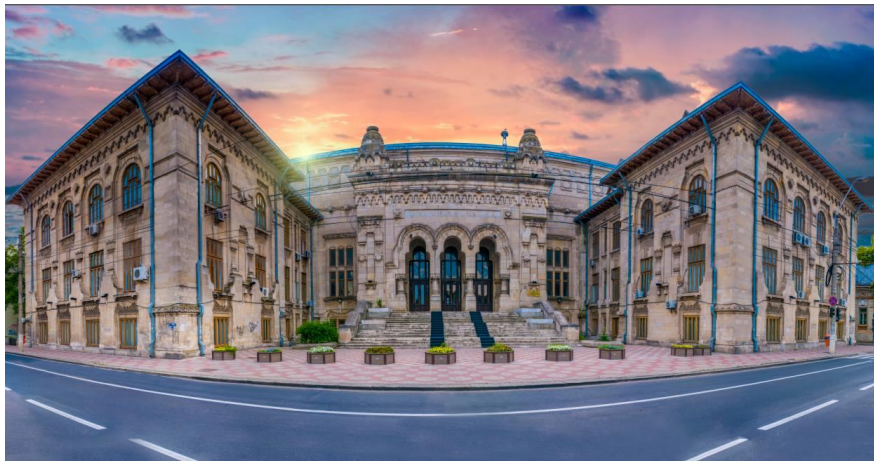
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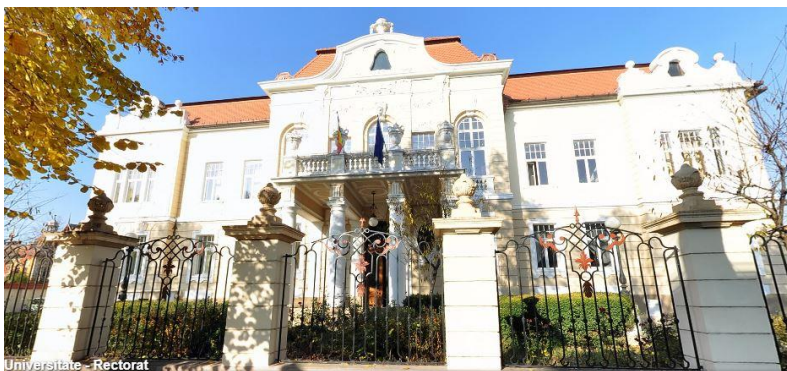
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Bosch Engineering Center Cluj



Bosch Engineering Center Cluj was founded as an integral part of the Bosch worldwide engineering network in 2013. The Center is located partly in the heart of Cluj-Napoca and partly in Jucu. Our engineers give great importance to continuous innovation and they work on state-of-the-art technology projects. Automated Driving, Electric and Connected Mobility, Internet of Things are just a few examples from the Bosch Engineering Center Cluj's current portfolio. We work in close collaboration with other Bosch R&D Centers and the Bosch Plant from Jucu, we specialize in software engineering, hardware and mechanical engineering, quality validation, analysis & reliability engineering, but also sales planning.

As a synergic part of Bosch Engineering Center Cluj, the Hardware and Mechanics Department offers engineering services in the areas of mechanical, PCB and hardware design for both local and international costumers. The team aims at excellency in product design by making use of Bosch's high-standard, well-equipped, modern laboratories, state-of-the-art technologies, local reliability testing and manufacturing facilities.

Caelynx Europe ofera servicii de inginerie 3D, consultanta tehnica, proiectare si analiza CAE in domeniile auto, aerospacial, energie, aparare, medicina.



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- **Isight** - solutie de automatizare si optimizare a simularii de produs
- **Tosca** -solutie de optimizare a produsului
- **FE Safe**- solutie calcul de oboseala si durabilitate
- **3D Experience**
- **Centru autorizat de formare.**

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- **CFD (Dinamica fluidelor):** capacitate completa (curgeri in regim stationar si nestationar, modele turbulente, aerodinamica), inclusiv interactiunea structurii cu fluidul.
- **Simulare injectie mase plastice**
- **Design:** piese turnate, materiale plastice, mecanisme, asamblari
- **Analiza la grup motopropulsor:** motoare cu ardere interna, transmisii, generatoare.
- **Optimizare:** optimizare neliniara avand variabile cu forme complexe.
- **Analiza la impact:** analiza de impact conform regulamentelor si directivelor europene, cinematica ocupantilor, impactul cu pasarea.
- **Caracterizarea materialelor:** composite, hiperelastice, fracturarea metalelor



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- › **Speakerless Audio System** replaces conventional speakers with actuators, which create a high-quality 3D audio experience by vibrating certain surfaces inside the vehicle.
- › **Wireless Key PASE system**, which allows drivers to open the doors without the need for keys. All they need to do is to approach the vehicle with a smartphone or a wearable device, such as a smart watch or ring, and the car will be opened by a virtual key.
- › **Artificial intelligence** used by Continental turns the entire vehicle into a digital companion that remembers and interprets the user's behavior, adapts navigation or infotainment offers and even anticipates the wishes of the driver. To enable a natural conversation between the driver and the vehicle, Amazon's cloud-based voice service, Alexa, has been linked to several vehicles.



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The DRÄXLMAIER Group supplies premium automobile manufacturers worldwide with complex wiring harness systems, electrical and electronic components, exclusive interiors, and battery systems. DRÄXLMAIER develops pioneering wiring harness technology as well as electrical and electronic components, all directly in-house. DRÄXLMAIER is working on the future of emission-free mobility with its solutions for low-voltage and high-voltage battery systems.

Customers of the Top 100 Automotive Supplier include Audi, BMW, Jaguar, Land Rover, Maserati, Mercedes-Benz, MINI, Porsche and VW.

On the Romanian market, DRÄXLMAIER Group is present since 1993 and is one of the largest employers in the country. At the moment, the Group has here five production centers which are also development centers - Satu Mare, Pitesti, Timisoara, Hunedoara and Brasov.

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ELECTRO OPTIC COMPONENTS is specialized in the development and manufacture of optoelectronic systems for various applications. Some of the company achievements are:

- warning systems against laser and radar illumination;
- thermal cameras, optoelectronic sensors and interfaces for their integration into complex systems;
- oem laser rangefinders with $\lambda=1.06 \mu\text{m}$ and $\lambda=1.54 \mu\text{m}$;
- laser rangefinders subassemblies for integration in other optical systems (binoculars, optical aiming devices);
- day/night surveillance systems;
- ruggedized PC computers with framegrabbers for image processing of different video sources such as CCD and night vision cameras, which can be integrated in complex surveillance systems;
- DC/DC and AC/DC converters;
- various types of microcontroller boards for automation;
- PC and microcontroller software development.

ELECTRO OPTIC COMPONENTS is ISO 9001:2008 certified and has the technical ability to develop complex electronic and optoelectronic systems for different applications.

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Founded 1991 with origins in the aviation industry, INAS maintains its position of major provider for best-in-class CAD/CAM/CAE/PLM/IoT software solutions, training, technical support and consulting services. With a team of over 50 people, the company is being recognized on the Romanian and international market as a leading technical consulting center for a wide spectrum of industrial applications from automotive, aerospace and heavy equipment to nuclear and defense.

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If you need to design and test your products faster and better with lower costs. If you need the best-in-class CAD/CAM/CAE/PLM software or technical expertise. If you need better support and training.

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- **PTC** (since 1992): Creo (CAD/CAM software), Mathcad, Windchill (PLM), Arbortext (technical illustrator), ThingWorks (IoT)
- **Moldex3D** (since 2009): plastic injection simulation
- **Vericut** (since 2007): CNC simulation
- **NCGCAM** (since 2009): CAM for HSM
- **MAGMASoft** (since 1994): casting simulation
- **Bentley** (since 2008): software solutions for infrastructure

SERVICES

- Consulting (FEA/CFD, CAD/CAM, Injection Molding Simulation, Casting Simulation)
- Research, Technical Support, Training



Corporate Fact Sheet

Overview

Microchip Technology Inc. is a leading provider of microcontroller, mixed-signal, analog and Flash-IP solutions, providing low-risk product development, lower total system cost and faster time to market for thousands of diverse customer applications worldwide. Headquartered in Chandler, Arizona, Microchip offers outstanding technical support along with dependable delivery and quality. For more information, visit the Microchip website at <http://www.microchip.com>.

- Founded in 1989
- Publicly held (NASDAQ: MCHP) and listed on the Standard & Poor's 500 financial index
- \$3.408 billion in net sales for fiscal year 2017 (ending March 31, 2017)
- Approximately 13,500 employees worldwide
- 63 sales offices worldwide
- Manufacturing facilities: Tempe, AZ; Gresham, OR; Colorado Springs, CO; Bangkok, Thailand; Laguna, Philippines
- Development centers: Bangalore, India; Lausanne, Switzerland; Santa Clara & Los Angeles, CA; Chandler, AZ; Bucharest, Romania; Manila, Philippines; Budapest, Hungary; Norristown, PA; Shanghai, China; Hsinchu, Taiwan; Austin, TX; Karlsruhe, Germany; Gothenburg, Sweden; Hauppauge, NY; Chennai, India; Irvine, CA; Hong Kong, China; Vietnam; Nantes, France; Rousset, France; Heilbronn, Germany; Whiteley, UK; Trondheim, Norway
- The Company's quality systems are ISO/TS-16949:2009 certified
- 106 consecutive quarters (more than 26 years) of profitability, as of March 2017
- Has shipped more than 19 billion microcontrollers
- #1 in worldwide 8-bit microcontroller revenue and #3 in worldwide microcontroller revenue according to Gartner

Applications

Microchip serves over 115,000 customers in more than 65 countries who are designing high volume embedded control applications in the consumer, automotive, industrial, communications, defense and aerospace and computing industries.

Microchip opened in 2006 its Romanian Development Center close to the University Politehnica of Bucharest. Currently there are more than 250 specialists with expertise in digital and analog IC design, applications and tools development and customer support activities.



Miele Tehnica Braşov is a subsidiary of Miele & Cie. KG, Germany. It was established in 2009 as a second electronics factory in the group, after the plant in Gütersloh.

The Miele plant in Braşov currently has 300 employees and produces electronic components for a wide range of Miele appliances, such as washing machines, tumble dryers, vacuum cleaners, ovens and others. The products Miele offers to its customers set the standards for durability, performance, ease of use, energy efficiency, design and service products.

In august 2015, in Braşov, a software development division was created. Within this new division the software for a wide variety of Miele appliances is developed.

The facility in Braşov is equipped with state-of-the-art technology and all quality requirements are respected according to the Miele Group's standards. This fact is acknowledged by all the certifications currently in place: ISO 9001, ISO 14001, ISO 50001, OHSAS 18001 and SA 8000.



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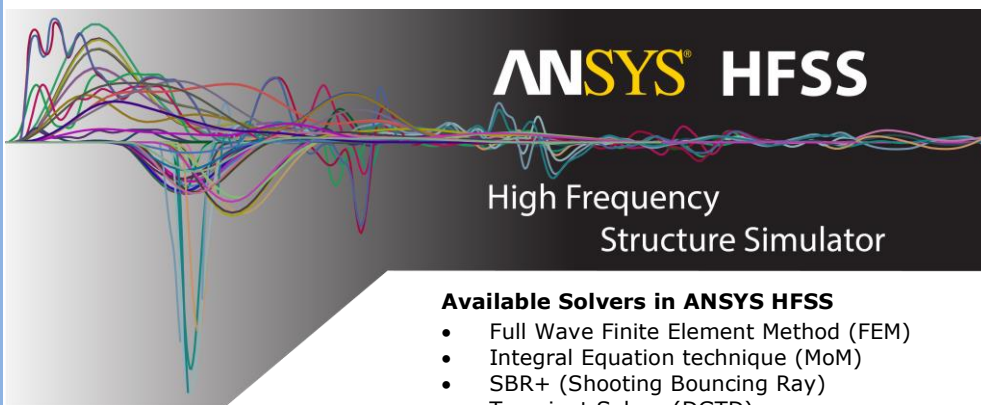
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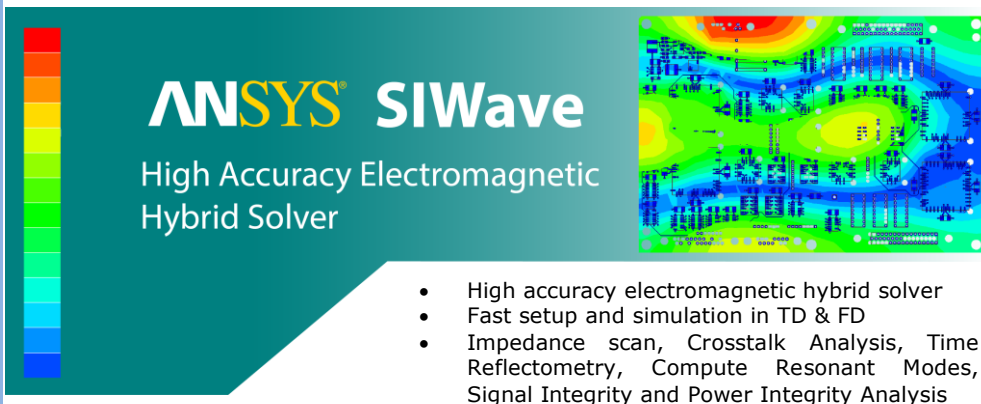


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Founded 2011; 83 registered members

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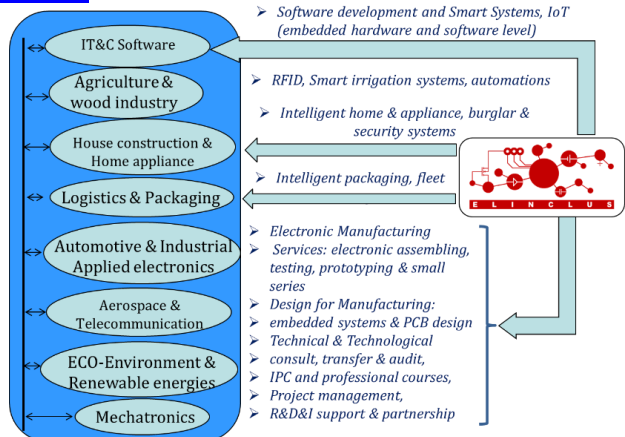
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SMARTI project:



Managerial Structure for a Robust, Technological and Innovative Environment
The overall objective of the SMARTI project, namely to increase the capacity for innovation and the competitiveness of ELINCLUS cluster members, especially SMEs is in perfect harmony with the National Strategy for Research, Development and Innovation 2014-2020, with The Danube Strategy, the Europe 2020 Strategy and the National Competitiveness Strategy 2014-2020.

TIE 2020

The TIE event comes home

On behalf of University Politehnica of Bucharest it is my honor and privilege to invite you to the TIE 2020 event, the 29th edition of the Professional Student Contest on Interconnection Techniques in Electronics (TIE).

The TIE 2020 event will take place in Bucharest, returning to the place where the whole story began in 1992. Looking back in time, I realized how fast the time goes by and TIE has almost reached the number 29. Being among the organizers from the beginning, I had the possibility to see that TIE event was continuously grown, developed and why not, re-invented. Starting from a local contest at UPB in the first editions, it has been addressed to many other Romanian Universities and even we had international participants from neighbor countries. After a series of 11 editions organized in Bucharest it was decided that TIE becomes itinerant. The itinerant character of TIE offered the opportunity to a better collaboration between Universities, that was concretized under the name: “Electronic Packaging Education, Training and Research University Network – EPETRUN”. This national academic network has as major role to promote electronic packaging in the benefit of future engineers and companies. What now TIE has become, is a good example of collaboration between Universities and Companies. In this sense, not only the tasks for contests are written accordingly to indications from companies but also the granted Certificates of PCB Designer came from an Industrial Committee.

Our host in Bucharest for the next TIE event will be University Politehnica of Bucharest. UPB is the largest and most prestigious Romanian Technical University. It includes 15 faculties, among them a faculty with foreign language teaching (English, French and German), and two interdisciplinary faculties (Medical Engineering and Entrepreneurship and Business Management). In UPB are acting more than 25,000 students and 1,200 teaching staff. UPB has a modern library and conference center, ready to host the TIE event.

On behalf of the local organizing committee, I am honored to address you all an invitation to Bucharest for the 29th edition of TIE event and competition and we are looking forward to welcome you at TIE 2020.

Bucharest, April 2nd, 2019

Prof. Ciprian Ionescu, Ph.D.

University Politehnica Bucharest

Faculty of Electronics, Telecommunications and Information
Technology

TIE 2020 Chair,

IEEE EPS Hu&Ro Joint Chapter Chair



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