



# The SPE Press

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February 2017

The Southern California Section of the Society of Plastics Engineers  
Local information on resources and education available to plastics professionals

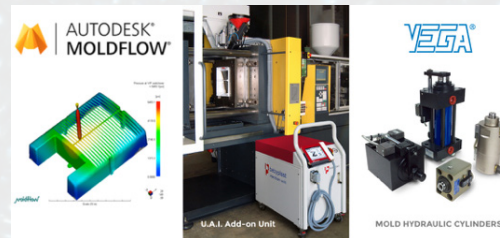
**Date: Thursday,  
February 16, 2017**

**ALBA Enterprises**  
10260 Indiana Ct,  
Rancho Cucamonga, CA  
(909) 941-0600

**Register Now!**

## Boosting Productivity, Innovation and Growth Molding Workshop

### UNDERSTANDING PART MANUFACTURABILITY WITH MOLDFLOW



There are many challenges engineers face when designing plastic parts. Material selection, determining tolerances for assembly and following all the design guidelines are just some of the factors that must be taken into account. Being able to assess part manufacturability or simulate design variations early in the development process is a proven way to minimize the cost and time impact of making changes.

- Finding common part design issues like areas too thin / thick, not enough draft or undercuts
- Comparing different candidate materials considering material cost, clamp pressure and warpage
- Determining best gating location(s) by taking into account tool design, number of gates and prohibiting off limit areas
- Evaluating the filling pattern and identify potential defects of the part including weld lines, air traps and sink marks

### Validate your Mold and Optimize your Process with Moldflow

Time is money, and time means seconds when it comes to injection molding cycle times. This is a major focus when first considering mold design choices. Reducing seconds out of a cycle time can dramatically increase the profitability of a job and lower the piece part cost. This also needs to be done while maintaining product quality criteria (critical dimensions, warpage, cosmetics etc.). This can be accomplished by exploring part design, cooling methods, mold materials, ejection methods, runner/ gate designs and optimizing process parameters.

*... continued next page*

- What quick simulations can help improve quotes and initial tooling concepts
- How to assess the impact of ejection, runner/gate and cooling on quality criteria
- Use of highly conductive mold materials and conformal cooling
- Identify and avoid any deflection or core breakage
- How to apply Moldflow optimization to reduce development time

## Evaluating Product Surface Quality and Cosmetic defects with Moldflow

As highlighted in session 1&2, successfully developing molded components is challenging. There is typically a lot of focus on mechanical and functional criteria. Also, critical dimensions with molded components can be extremely difficult to predict. What happens when you go through the efforts of engineering all of this correctly but there is a cosmetic issues that brings your program to a halt? Assessment of cosmetic criteria can be more challenging and the efforts to predict them, even more challenging.

- Items to consider to get the desired surface finish
- The impact of cooling on surface finish
- Use of process techniques to improve cosmetics
- Impacts of color and texture on the visibility of defects like sink marks
- Common pitfalls when optimizing parts for surface finish

## *Autonomous Injection Unit – Multi-material Molding made Easy*

A Plug and Play solution that allows molding with two or more components using a standard injection molding machine. It is applied directly to the mold or on the machine surface, horizontally or vertically. The Autonomous Injection Unit (UAI), offers an economical and practical solution for transforming an existing, standard, traditional single component injection molding machine, into a multi-component machine.

Hydraulic Cylinders Designed Specifically For Plastic Injection Molding - The right tool for the right job

Learn Why Vega Hydraulic Cylinders Are Different from Others...

Vega is specialized in the design, production, sale and technical support of Hydraulic Cylinders for application on plastic injection and die-cast molds. Vega's strategy consists in providing application-oriented solutions, rather than simple products.

Who should attend?

The intensive course is designed for plastics engineers, owners, managers, processors, Technicians, floor personnel, OEM's and anyone who wishes to acquire knowledge concerning the latest in injection molding technology.

**Date:** Thursday, February 16th 2017

**Time:** 8:30 registration 9:00 Workshop 1:00 Live demonstrations 3:30 Adjourn

**Location:** ALBA Enterprises, 10260 Indiana Court, Rancho Cucamonga, CA 91730

**Cost:** Cost: SPE Member: \$100 Non-Member: \$ 130 (Join SPE today and save \$30)  
(Includes Continental Breakfast and afternoon Lunch)

Register Online at : [www.socalspe.org](http://www.socalspe.org)

## PRESIDENT'S MESSAGE



We hope all of you have enjoyed a good start to 2017. As the busy time of the holidays passes and we turn our calendar to a new year, we enter a time of reflection, renewal and planning for the year ahead! Our Board of Directors have been actively engaged in such efforts! With a recent planning and goal-setting strategic meeting, we have developed a framework to help keep our SPE Section growing and healthy in the coming years. Many topics were discussed, with those of Membership, Molding Workshops and Seminars, Golf Outing and Trade Fair events came up as top priorities to be addressed this year.

Membership is very crucial for the survival of any organization. The value of membership is an important factor in retaining existing members and attracting new members. Therefore, to improve the value of our membership will be our main focus in the upcoming year. More specifically, we want improve the value of membership by enhancing the educational value of our Molding Workshops and Seminars, creating an online repository to post all the publications by our members, making the online discussion forum to be user friendly among members and improving the quality of the newsletter.

Our first Molding Workshop in 2017 on Productivity and Innovation with speakers from Autodesk®Moldflow® and Alba Enterprises will be held on February 16. This is an all-day event and we invite you to attend. More information about this workshop is in our website and in our Newsletter.

Finally, if you are currently a member of the SPE we thank you for your loyalty and commitment. . If you are not a member, we hope that you will visit various areas of our website to learn about the SPE and consider how joining the organization can enhance your professional life.

Tuan Dao  
President, SoCal SPE  
(714) 692-9492



## Why Join SPE?

Whether you're a plastics scientist or engineer, a business owner, marketing/sales expert, or any other professional in plastics, SPE membership can help you advance your knowledge and your career. The information you need to increase efficiency and productivity, develop your career, and add to your company's bottom line is literally right at your fingertips.

The Society of Plastics Engineers is home to nearly 20,000 plastics professionals in more than 70 countries around the world. SPE is the "go to" resource for plastics technical information.

### Each Month, we will explore one of the six key benefits of becoming SPE.

- Plastics InSight – A customized to your need Weekly Newsletter
- SPE Material database – Access "Tons" of material in the world of Plastics
- Registration Discounts – on over 40 conferences and local meetings and events
- **Plastics Engineering Magazine – Free subscription to leading**
- SPE Online Technical Library -
- The Chain – Where Plastics Professional connect and get answers

Last month, we explored how an SPE member can take advantage of registration discounts and save enough money to offset the cost of the membership.

This month we will talk about another key benefit of being a member – a free subscription to Plastics Engineering magazine.

PE is a magazine with one purpose: to convey industry information to industry professionals in as succinct format as possible. Looking for a monthly industry magazine that will bring you up to speed on products, services, and industry events? Look no further. Plastics Engineering magazine delivers more visibility: more products/services are readily discernible by readers; all contributors' information is presented in a direct, quick-read format; and advertisers' display ads are positioned to give the readers a look at what these companies have to offer and a direct means for reaching them.

Check it out for yourself: <http://www.plasticsengineering.org/>



**TECH TIPS****New Shapes for Conformal Cooling\* - *By Jan H. Schut***

Conformal cooling channels in injection molds have been built by additive manufacturing, or 3-D printing, developmentally since the late 1990s using successive thin layers of metal. Unlike conventional straight drilled cooling lines, conformal cooling channels curve around deep shapes in a mold, equidistant from the mold surface, which is the source of heat. They can only be built by additive manufacturing and are designed with cooling line requirements secondary only to part and parting line requirements, unlike traditional drilled cooling lines which are located where space is available late in the design process.

Conformal cooling, however, was limited by the capabilities of the early metal powder welding process, which used metal powders coated with polymer binder, then evaporated out the binder leaving porous metal, and infiltrated the porous space with bronze. Since about 2006, direct additive manufacturing of pure metal powders became possible with the integration of fiber lasers into metal printing vs. the original CO2 lasers. 3D Systems Inc., Rock Hill, NC ([www.3dsystems.com](http://www.3dsystems.com)), also added a compaction step to make a dense metal powder bed before laser melting thinner layers—20 microns vs. about 100 microns before.

All that makes “100% metal mold inserts possible with reasonably smooth surfaces, providing a rock solid tool for mold makers,” explains Scott Young, engineering manager at Basteck Inc., Dayton, OH ([www.basteck.com](http://www.basteck.com)), a service bureau for additive manufacturing since 1994 and a reseller for 3D Systems. Basteck has built molds using additive metal manufacturing since 2000 and using pure metal additive manufacturing since 2015.

**GOING BEYOND ROUND CHANNELS**

Conformal channels themselves, however, haven’t changed much in two decades of development. Primary cooling channels can transition to small capillary channels and back to primary trunk lines again to get cooling closer to the mold surface or to cool small mold details. Capillary channels can be closer together than large channels. (The cross section of the supply channel has to be equal to or greater than the sum of the cross sections of the capillaries, and the cross section of the return line has to be equal to or less than the sum of the cross sections of the capillaries.) But conformal cooling channels themselves are still typically round like drilled water lines.

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Graphics for advanced state-of-the-art conformal cooling from 3D Systems; EOS GmbH in Kraillingen, Germany ([www.eos.info](http://www.eos.info)); and Renishaw PLC in Gloucestershire, U.K. ([www.renishaw.com](http://www.renishaw.com)), three suppliers of metal-powder-based additive manufacturing systems, invariably show only round channels. But round may not be the best channel shape, according to a recent study by Bastech, presented at the AMUG 2016 conference ([www.additivemanufacturingusersgroup.com](http://www.additivemanufacturingusersgroup.com)) in April in St. Louis, MO. Bastech compared cooling efficiency of round, square, diamond, tear drop, triangular tear drop, and triangular channels, based on surface cooling area calculated from channel perimeter. So for channels with the same length and volume, the channel with the longest perimeter will have the most surface area and cool best.

Using 3D System's Cimatron 13 software, Bastech compared a round channel with a 1.374 inch perimeter to the other shapes and found that a tear drop has a 1.454 inch perimeter; square has a 1.474 inch (rotating the square into a diamond shape has the same perimeter but is structurally



*State-of-the-art conformal cooling channels like these from 3D Systems and Renishaw show round channels like traditional drilled cooling lines. But round may not be the most efficient shape. Triangle, star and X-shaped channels all have more surface area and cool better. Left photo: 3D Systems; Right photo: Renishaw;*

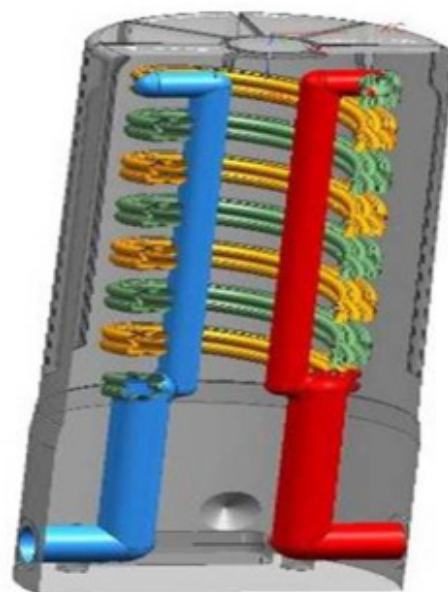
## THE 'X' FACTOR

The most complex conformal channels Bastech has built so far were done this year for a mold core for an in-house promotional product, a 5-inch-tall cold drink sleeve. The 8-inch high mold core, also presented at AMUG 2016, is cooled by two inter-twined helical flow channels with X-shaped cross sections (X's have even more surface area than triangles). The supply side channel splits to start one helix at the base of the core and the other helix at the top, creating counter flow, shorter channels, and more even cooling. The helical channels then reconnect into the return line to exit the core.

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Recent patent literature also mentions additive metal manufacturing of alternative cooling channel shapes. Star-shaped cooling channels are described by Siemens AG (U.S. Pat. # 8922072) and “triangular, rectangular, square, semi-circular, and ellipsoidal” channels by General Electric Co. (U.S. Pat. Applic. # 20140202163), both to cool heavy machinery, not injection molds. 3D Systems discussed the concept of star-shaped cooling channels at an electronics trade show in January this year, but without showing simulations.



Star-shaped channels, however, would be difficult to build by additive metal manufacturing “because unsupported structures shouldn’t overhang by more than 45 degrees,” notes Maximilian Boulter, manager for additive manufacturing at Renishaw’s LBC Engineering service bureau in Pliezhausen, Germany ([www.renishaw.com](http://www.renishaw.com)), “though the angle is dependent on a few things like material, size, and angle toward the recoating wiper.” The X shape is also difficult to build. “The X pattern would have been doomed in a single helix, but a double helix gave us enough pitch to create the shape,” Basteck’s Young explains.

Cleaning and maintenance, however, are issues with non-round channels, notes Mads Jespersen, a partner at FlowHow ApS, Sydiylland, Denmark ([www.flowhow.dk](http://www.flowhow.dk)), a consultant on conformal cooling. Jespersen calculated how much steel was needed for a mold core not to collapse with wear over time and filled all the open space with cooling water. “That made some weird but very effective cooling channel shapes,” he says.

He then simulated the flow rate of cooling water using Moldex 3D software from CoreTech System Co. Ltd., Chupei City, Taiwan ([www.moldex3d.com](http://www.moldex3d.com)), which includes computational flow dynamics (CFD). CFD showed potential areas in the cooling channels with no flow. The risk with ‘no flow’ areas is that “these irregular channels, while effective, would also be sensitive to corrosion and deposits and impossible to clean without use of chemicals and the risk of damaging small features in the cooling channels,” Jespersen says. He concludes that “conventional round channels may be the best solution to minimize the cost of cleaning, spare parts, and break downs.”

Instead of increasing the surface area of the channel with alternative shapes that may be hard to clean later, cooling can also be improved by turbulent flow. FlowHow’s Jespersen simulated and built unusual “fish net” structures with additive manufacturing in combination with round channels to increase turbulent flow where more cooling is needed.

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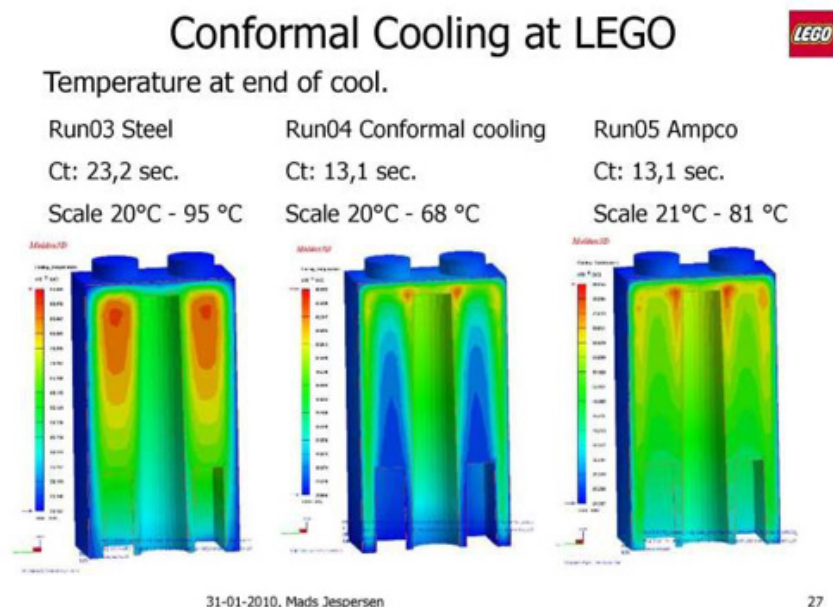
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Like FlowHow, Bastech also used additive manufacturing to reduce the mass of metal in molds, but it wasn't to increase cooling water volume. It was done because less metal in the mold means faster mold start up and shorter additive manufacturing time. "We only need 0.25 inches of tool steel for mold walls, plus an inch or so for the cooling channels. Everything outside of that we don't need," Bastech's Young explains. For the drink sleeve core instead of a solid metal mold, Bastech built a structure of trusses and supports, leaving diamond shapes of metal out and removing roughly 25% of the metal. The drink sleeve core took only 38 hours to build vs. 42 hours for CNC programming and machining to build the same core out of solid tool steel with conventional spiral baffles.

An earlier important study on conformal cooling was done internally by Lego Group, Billund, Denmark ([www.lego.com](http://www.lego.com)), in 2010. Lego used Moldex3D software and MSC Nastran finite element analysis software from MSC Software Corp., Santa Ana, CA ([www.mscsoftware.com](http://www.mscsoftware.com)), to simulate and build three different cores for Lego blocks: one out of standard tool steel, one with an Ampco bronze cooling insert, and one with conformal cooling. The study found that cycle time went down to 13.1 seconds for cores with the bronze insert and conformal cooling vs. 23.2 seconds for standard tool steel, but conformal cooling made better parts with less warpage than bronze inserts.

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Temperature differences between actual mold inserts and simulation were reportedly within 5%. Lego is now believed to have built more conformally cooled production molds than any other company in the world.



Conformal channels don't have to be big. A 2010 study done at Lego using Moldex3D software and MSC Nastran FEA software, compared conformal cooling and bronze inserts to standard tool steel. Both inserts cut cycle time almost in half, but conformal cooling made better parts.



**AREA HAPPENINGS**

*After 42 years of service at Cerritos College in the Plastics Mfg. Technology Department Terry Price is retiring*

Terry Price has been teaching at Cerritos College for over 35 years and has developed Certificate and Degree programs in Plastics and Composites as well as short focused courses. He has also helped countless inventors with finding solutions to their specific problems.

An active professional, a friend of Southern California SPE section was always available to assist and contribute. He promoted Plastics Education and Cerritos College at every opportunity presented to him. Terry has been awarded most outstanding Faculty award numerous times. He was instrumental in development and deployment of Plastics Recycling trailer. The Recycling Trailer from Cerritos College is a dynamic machine which is actually a "Rolling Classroom" intended to show how actual Recycling can be done.

**We wish you  
all the best,  
Terry!**



*...continued from page 8*



Better Industry. Better World. The Industry Is Evolving and So Are We

For almost 80 years, SPI: The Plastics Trade Industry Association has been providing education and advocacy to our members. As the plastics industry grows and evolves, the audience expands. And to continue to drive the industry forward for decades to come, our board of directors made a decision to evolve our purpose-driven organization.

That's why today, we're introducing our new brand—Plastics Industry Association; PLASTICS for short. As well as a new tagline, "Better Industry. Better World." It's simple. It's straightforward. And it defines who we are: a forward-thinking association that believes in making a positive impact.

In the changing world of plastics, we have to stay relevant. We're looking to grow and support sustainability. We're helping to find active solutions to make recycling easier. We're working to help others learn how to operate in an environmentally friendly way. We're helping the industry grow while also promoting new technology through our trade shows and conferences. And we're giving our members a clear way to talk about our association.

We're not a society. We're not an acronym. We are an association that helps to create possibilities and shape the future of the industry.

We are PLASTICS. Let's show the world what we can do, together.



In this new section of our Newsletter, all SPE members are and their employers are welcome to post Position Wanted or Seeking Employment three times per calendar year at no cost. All Newsletter advertisers are also welcome to post advertisement six times per calendar year.

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## MEMBERSHIP SPOTLIGHT

### SoCal SPE Wants YOU to Become a Member

The SPE Southern California Section is, for a limited time, offering one FREE registration to a single, exclusive local technical event for those who sign up for an SPE Membership! To be eligible for this special offer, visit our website @ [socalspe.org](http://socalspe.org) to check out the event calendar and register as an SPE Member! Once a member, you will be sent a voucher to bring to the SoCal SPE event of your choice! Offer also applies to expired memberships. Don't let this opportunity pass you by, become an SPE member today!

For questions, contact Ashley Price at 562-217-1377 or [aprice@ethorn.com](mailto:aprice@ethorn.com).

## KNOW YOUR SPONSOR



Borche is an injection molding machine manufacturer established in North America in 2003 under the guidance of Hans Chen, who expanded the company from China and pushed them towards quickly becoming a leader in their industry. Borche has excelled by making quality, innovation and customer service their number one priority. In a modern 1,800,000 square foot facility, equipped with the best parts

and equipment from all around the world, Borche has the capability of producing over 10,000 precision molding machines per year, servicing the auto, commercial, and medical markets. When companies choose Borche they quickly appreciate the outstanding care and service; from Skip Humphrey in sales to the owner Hans Chen, customers get the best hands-on treatment one may come to expect from a worldwide leader. Whether it's the realization of increased productivity, the potential energy savings, unbeatable pricing, or that 90% of the machines manufactured for North America in 2016 were for repeat customers, Borche consistently proves to be the best and preferred choice for injection molding machines. With their full turnkey operation and North American support, offering the highest quality in all aspects, Borche has produced a recipe for success. We look forward to watching Borche's growth in North America and thank them for being a strong supporter of SPE.





## EDUCATION

### The College of the Extended University, Cal Poly, Pomona Plastics Engineering Technology Certificate Program

#### Plastics Theory and Practice

*Plastics Theory and Practice* is part of an ongoing certificate program offered by the College of the Extended University at Cal Poly Pomona. The four-course program provides practical instruction applicable to materials, processing, product design and tooling.

##### Why should you attend?

This short course is designed for professionals entering the field of plastics desiring to acquire the basic knowledge of Plastics industry in general. Plastics Theory and Practice is also suitable for individuals in plastics sales, purchasing, marketing and management positions that do not possess a technical, engineering or scientific background. This course should also be valuable for technical, scientific and engineering personnel, either entering the field of plastics or interest-ed in broadening their knowledge of materials and processing techniques. The objective of the course is to expose partic-ipants to the basics and point them in right direction so that they can obtain more information through websites, books and periodicals to further enhance their career. The PowerPoint presentation used in the course is descriptive and practical and presented in simple, easy to understand language without being extremely detailed or technical. It is widely illustrated with animations, diagrams and photographs.

##### Who should attend?

Sales and marketing personnel, engineers, product and tool designers, purchasing managers, plant managers, tool makers, molding supervisors, quality assurance personnel and anyone who wants to acquire basic knowledge of plastics in general and/or take a refresher course on the subject.

##### Content

Polymer structure properties and applications Processing techniques  
Plastics terminology Plastics tooling, Plastics processes  
Product design basics Assembly and secondary operations  
Material selection process Decorating and printing  
Testing and failure analysis Interpreting data sheets  
Plastics industry standards Plastics identification  
Plastics recycling

In addition, students will receive a variety of useful handouts showing How and Where to get more detailed information concerning a variety of plastics-related topics.

*Continued on page 11...*

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Date(s)	Saturdays, February 11 and February 18, 2017
Course Time	8:00 a.m.-5:00 p.m.
Location	Cal Poly Pomona, Bronco Student Center, Lyra Suite
Fee	\$375
Special Pricing	A 10% discount is offered on all non-credit courses based on the following: • Current Cal Poly Pomona Alumni Association members with proper ID • Current Cal Poly Pomona faculty and staff with proper ID
Course Status	Non-credit
Textbook	None
Syllabus	There is no syllabus available for this course
Instructor	<a href="#">Vishu H. Shah</a>
Course Code	PET120

Registration: [www.cpp.edu/~ceu/index.shtml](http://www.cpp.edu/~ceu/index.shtml)

For more information call: College of the Extended University 909-869-2288 or  
Instructor 909-465-6699

### ***Comments Provided by Students***

- Great course, very instructional...love the PowerPoint notes
- The instructor uses examples that are relevant to my industry/field
- The overall explanation of the basics of Plastics was very clear and concise, explained in plain English without having to use big and sophisticated words to explain theory or function
- The course's major strength was instructor's ability to relate to real life experience
- Very Practical – I highly recommend to anyone new to plastics industry
- Hand-outs are great, I refer to them on regular basis

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### **Who Should Attend?**

Engineers, R&D Scientists, Technicians, Technical Sales & Support, Academics, Students, Managers, along with anyone involved in the plastics industry.

### **Who Participated in 2016?**

[Companies who attended ANTEC® 2016](#) | [Companies who presented at ANTEC® 2016](#)

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## 2016-2017 YEAR CALENDAR [www.socalspe.org](http://www.socalspe.org)

SEPTEMBER 2016						
S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

September 15

Evening Technical Meeting

Robots, Collaborative

6:00 PM  
Jagerhaus, Anaheim

MARCH 2017						
S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

March 23

EDUCATION NIGHT 6 PM  
TBD  
Norwalk



OCTOBER 2016						
S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

October 20

Plant Tour

6:00 PM  
Torrance, CA

APRIL 2017						
S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

April 20

Evening Technical Meeting

3D printing Update

6:00 PM  
Jagerhaus, Anaheim

NOVEMBER 2016						
S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

November 14



Molding 2016 Workshop

Milacron Tech Center  
Irvine

MAY 2017						
S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

May 8-9-10

SPE ANTEC

Hilton  
Anaheim

DECEMBER 2016						
S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

December 6



SPE Networking Reception  
Featuring Greg LeMond

JUNE 2017						
S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

June 22



Annual Golf Outing

JANUARY 2017						
S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

January 19

Evening Technical Meeting

Advances in Silicone  
Technology for Medical  
Applications

Jagerhaus, Anaheim

JULY 2017						
S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					



Happy 4th!

FEBRUARY 2017						
S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

February 16

Workshop

Autodesk/Moldflow 2016

TBD  
Irvine

AUGUST 2017						
S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

August 17



Phoenix Club  
Anaheim

\*All meetings are held on third Thursday of the month unless otherwise noted