



POLYMERUPDATEACADEMY.COM

POLYMERS IN AUTOMOTIVE PLASTICS APPLICATIONS

A Masterclass Workshop

12-13 April 2024

iACE, GANDHINAGAR, GUJARAT

Prepared & Conducted by

Dr. Saurabh Tayde

Er. Sandeep Pankade

Dr. Muralisrinivasan

SUMMARY

This workshop will delve into the fascinating world of polymeric materials and the intricacies of designing moulds for automotive components. As the automotive industry rapidly evolves, incorporating advanced materials and cutting-edge design techniques becomes imperative for achieving excellence. Let's embark on this journey together to explore the latest advancements and best practices in Polymer Technology and Mould Design for automotive applications.

Overall, this course is highly recommended for professionals and students in the fields of automotive engineering, materials science, plastic mould designing and related industries who want to gain a deeper understanding of the use of polymer materials in the automotive sector.

By the end of the course, participants will have acquired practical skills and knowledge to make informed decisions about polymer material selection and the fundamentals of mould design for sustainability and manufacturability through a combination of lectures and case studies in the automotive industry.

Key Features:

Certificate of Completion



Access to Excellent Quality Study Material



Troubleshooting Related to Materials & Process Conditions



iACE Lab Tour



Q&As



ABOUT POLYMERUPDATE ACADEMY

At Polymerupdate Academy, we offer a broad range of courses in the Petrochemical and allied industries, in collaboration with renowned professors from the field of education. The courses address the critical, technical and managerial needs in both the Public and Private sectors and are unique to each individual client.

Learn about the many benefits of cutting-edge, online educational courses for a life-long career in the fields of Polymer Science and Composites. We have ensured that the courses are affordable yet valuable and play a key role in upskilling those who sign up for the training. These courses are carefully designed to help professionals manage everyday challenges with greater confidence and expertise.

The Polymerupdate Academy also provides customised corporate training courses to assist businesses with their specific requirements. We believe that capitalizing on effective training to equip employees with expanded market knowledge, is a key to greater efficiency and achievement, not just for the business alone, but for the industry as a whole. The various courses provided at the academy, address the critical, technical and managerial needs in both the public and private sectors.

The Customised course programmes are created through sessions based on detailed requirements with a balance of theoretical ideas and creative inputs. Mix and match your expertise and build a course that suits you best!

ABOUT iACE

The International Automobile Centre of Excellence (iACE) is incorporated as a 'Section 08 Company' under the Companies Act 2013, by the Government of Gujarat in collaboration with Maruti Suzuki India Limited (MSIL), with each holding a 50% equity stake.

iACE stands as an apex body for skill development in the automotive sector, leveraging modern technology and systems. Our center caters comprehensively to the entire value chain of the Automotive Industry, encompassing both Manufacturing and Servicing domains.

At iACE, we pride ourselves on being a world-class institute, addressing the 'end-to-end' training, development, and research needs of the automobile ecosystem in India.

Our facilities boast the latest 'state-of-the-art' infrastructure and technical labs, providing students with hands-on learning experiences.

Furthermore, iACE fosters industry-academia collaborations with leading Indian and foreign partners to ensure the knowledge and technological relevance of our industrial learning programs.

BENEFITS OF iACE

State-of-the-Art Facilities: iACE is equipped with modern facilities and laboratories tailored for automotive research and development, providing an ideal practical learning environment for participants.

Industry-Relevant Curriculum: Located in one of India's automotive hubs, iACE is in a prime position to offer curricula that are directly relevant to current industry needs and trends, particularly in the rapidly evolving field of polymer applications in automotive manufacturing.

Expert Faculty and Industry Connections: iACE boasts a team of experienced educators and industry professionals. Trainees can benefit from their extensive knowledge and potentially establish valuable industry connections for future collaborations or employment opportunities.

Strategic Location: Gandhinagar, being close to several major automotive manufacturing plants and research centers in Gujarat, provides an additional layer of relevance and opportunity for practical industry exposure. It also facilitates easy collaboration and guest lectures from leading industry experts.

Innovation and Research Opportunities: The center's focus on innovation and its ties with the automotive industry make it an excellent place for aspiring professionals to work on cutting-edge projects, particularly those involving new and sustainable materials like polymers.

Networking Potential: Participants will have the chance to network with peers, industry experts, and potential employers, enhancing their professional development and opportunities.

COURSE SCHEDULE

In-Person Masterclass Workshop Venue:

iACE, GANDHINAGAR, GUJARAT

Raysan Road, Knowledge Corridor,
Gandhinagar, Gujarat - 382007, IN

DAY 1

April 12th, 2024

TIMING: 9:30 - 17:30 (IST)



DAY 2

April 13th, 2024

TIMING: 9:30 - 17:00 (IST)

COURSE FEES INCLUDES:

- Training Kit - Course Materials + Stationery
- Morning Tea, coffee, and snacks;
- Lunch; Evening tea, coffee, and snacks
- Certificate on completion of the training

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:

Mr. Vaibhav Kamble +91 8898 660 692

Ms. Nikita Oroskar +91 8591 545 638

COURSE CONTENT

Day 1

Session 1: (90 minutes)

I: Introduction to Next-Gen Polymers (30 Minutes)

- Overview of polymer materials in automotive manufacturing
- Importance of lightweight and high-performance materials in automotive design

II: Material Selection (60 minutes)

- Criteria for selecting materials for automotive applications.
- Discussion on commonly used polymers in automotive components.
- Overview of Mechanical, thermal, and chemical properties of next-gen polymers

Session 2: (90 minutes)

III: Properties and Characteristics of Advanced Polymers

- Structure, properties and relationship of polymer materials commonly used in automotive industry such as PP, PC, ABS, POM, Polyamides, PVC, PU, PET, PBT, acrylics, styrenics, composites, elastomers, and other commonly used plastics.
- Impact of material properties on performance, durability, and sustainability (factors affecting the selection of polymeric materials for automotive applications)

COURSE CONTENT

Day 1

Session 3: (90 minutes)

IV: Overview of Plastic Mould Design

- Basics of mould design, types of injection moulds, injection mould design process, part design, material selection, mould base, core and cavity design, parting line selection, gate design, venting, cooling system and tooling considerations.
- Importance of mould design for achieving desired part quality.

Session 4: (90 minutes)

V: Advanced Mold Design Techniques (60 minutes)

- Overview of hot runner systems and their benefits in mould design
- Discussion on multi-cavity moulds and their advantages for high-volume production
- Advanced injection processes like GAIM, Co-injection, Over Moulding, LIM, LIPM, In-Mould Decoration and WAIM.

VI: Design for Manufacturability (DFM) and Mould Flow Analysis (30 minutes)

- Principles of DFM in plastics mould design
- How DFM can improve efficiency and cost-effectiveness
- Purpose of mould flow analysis in mould design
- Benefits of using mould flow analysis software

COURSE CONTENT

Day 1

Session 5: (30 minutes)

VII. Q&A

- Opportunity for participants to ask questions and seek clarification on any aspects of the course
- Review of key takeaways from the course and practical applications of the concepts covered

VIII. Course Review

COURSE CONTENT

Day 2

Session 1: (270 minutes)

I. Troubleshooting Automotive Plastic Parts

- The troubleshooting of automotive plastics will focus on identifying key issues and discussing different methods for evaluating machine parameters and process parameters. Emphasizing the importance of troubleshooting in ensuring that plastics meet defined standards and finding solutions will be a key aspect of the discussion.
- Troubleshooting: This section covers troubleshooting related to materials, process conditions, and necessity of troubleshooting include issues, related to problems, causes and remedies.

Session 2:

II. iACE Lab Tour

WHO SHOULD ATTEND

The course on "Polymers In Automotive Plastics Applications" can cater to a diverse audience due to its interdisciplinary nature and relevance across various fields. Here are potential target groups for this course:

- Plastic, Polymer and Mechanical Engineers
- Materials scientists and Engineers
- Plastic Mold Design Professionals
- Professionals in Plastic Molding Industries
- Quality Control and Assurance Personnel
- Manufacturing engineers, Supervisors and technicians involved in injection moulding operations.
- Individuals involved in the design and development of plastic products.
- Researchers and Academics
- Business Executives and Managers
- General Enthusiasts

WHAT WILL YOU LEARN?

- Understand next-gen polymers for automotive applications
- Gain a comprehensive understanding of different types of plastic materials and their properties
- Learn how to select the right plastic material for specific product design requirements in automotive industry
- Understand the principles of designing plastic injection mould
- Explore advanced concepts in plastic injection moulding
- Apply the knowledge gained through hands-on exercises and case studies to real-world design challenges
- Explore the implications of different product defects like tiger lines, jetting, burnt parts, and other issues associated with automotive plastic components
- This knowledge can be applied to effectively troubleshoot problems, identify solutions, and leverage troubleshooting benefits gained from the course

MEET THE FACULTY

Dr. Saurabh Tayde

Faculty, Polymerupdate Academy

Dr. Saurabh Tayde is the Dean of Training at Maharashtra Institute of Technology, Aurangabad. He is also associated as an Assistant Professor and Department Placement Coordinator with the Plastic and Polymer Engineering Department at MIT, Aurangabad.



Dr. Tayde is a dedicated and self-driven professional with 10+ years of academic experience as an Assistant Professor. He has to his credit several articles published in prestigious journals related to Polymer and Chemical Technology. Dr. Tayde has demonstrated expertise in academia, research and has proven capability as a Training and Placement Officer.

He has obtained his Ph.D in Chemical Technology and M.Tech in Chemical Engineering from University SGBAU, Amravati.

MEET THE FACULTY

Er. Sandeep Pankade

Faculty, Polymerupdate Academy

MBA, M Tech, BE (Production Engineering) | Specialization: Tool Design and Manufacturing

IIM Indore Executive Alumni

30+ Years of Experience in Industry and Academics

Trained more than 1000+ design professionals in the field of Tool Engineering, Injection Mould Design, Press Tool Design and CAE.

Master trainer for Geometrical Dimensioning and Tolerancing (GD&T).



MEET THE FACULTY

Dr. Muralisrinivasan

Faculty, Polymerupdate Academy

An expert in troubleshooting in Plastic Processing Industry.

Served 32 years in the plastics industry with 22 years as a consultant to many polymers and plastics companies in India and abroad.

Conducted training programmes for Windsor, Kabra Extrusion, Polycab, TVS Sensors and many others.

Authored 22 books on Plastics, Processing and Additives published by reputable publishers like Wiley, Millenium, De Gruyter and River.



DISCLAIMER

Introduction: Welcome to our On-Site Training Program. In our continuous effort to create a conducive learning environment and to protect the privacy and intellectual property rights of our participants and facilitators, we kindly ask all attendees to observe the following policy. This disclaimer governs your participation in the program. By participating, you accept this disclaimer in full; accordingly, if you disagree with this disclaimer or any part of this disclaimer, you must not engage in the program.

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Contact Information: If you have any questions about this disclaimer, please contact us at Polymerupdate Academy on +91 93219 75884

Refund Policy: Course fees will not be refunded in case a registered participant is unable to attend the session. Replacement Policy However, participants have the option to send a replacement attendee by informing the organizers in advance by email.

Acknowledgment: By participating in the On-Site Training Program, you acknowledge that you have read this disclaimer, understand it, and agree to be bound by its terms and conditions. We thank you for your understanding and cooperation in ensuring that our training program remains a productive and respectful environment for all involved.



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A Unit of Polymer Update and Institute
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