

Internship

at

Alba tooling & engineering GmbH
Austria



VANIA AMAN CHOPRA
JUNE 2019

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Bitten by the Engineering Bug !

In about 2013, at age 11, I walked on my Dad's factory shop floor, just like I had done a few times before. This time I was accompanied by my younger brother and my cousins, who were visiting us from Mumbai and wanted to see how car seats and PU Foam is made. Since my Dad was in a meeting we were taken on the tour by the Plant Manager.

When we reached the welding shop, where they have Robotic Welding, my cousin out of curiosity asked how the Robot moves, I sprung and answered him, before the Plant Manager could, informing him that the control panel computer sends a message to the robot motor which moves the robot to do the job. I felt proud that I had more knowledge than my cousin brother who is elder to me by 2 years and I walked ahead of them the rest of the tour with a slight flight of pride in my stride. This I had learnt when I had walked the shop a few months before with my Dad and my younger brother.



*Shop floor near PU Robot Machine
My cousin & I in 2013*

That day I realized I was bitten by the Engineering Bug!

I dreamt of building fast cars, Jeeps and machines.

My dream is to build machines.

I wanted to work desperately in a factory, just the smell, the noise, the chaotic orchestra of movement of machines and products all over were calling out to me. I requested my Dad and got a summer internship in 2018 at Alba PowerSpack tooling India for 3 weeks. It was pure fun, while I was not allowed to actually work on the shop floor, due to worker minimum age restrictions in India, to work on the Shop Floor, but I could help the Quality team in measuring parts, tooling and checking PU Foam pads with templates. I enjoyed myself – looking at machines cutting and shaping metal and wood to look like car seats, aluminum being melted and poured and workers skillfully and tirelessly working with grinding tools to polish mould surfaces.

I requested Alba India's parent company in Austria – Alba tooling & engineering GmbH and fortunately they agreed to let me visit them for training for 3 weeks in the summer of 2019. My internship report is based on my visit and learning and experience at Alba, Austria.

Introduction

Location:

Alba tooling & engineering GmbH, Austria is located Forstau, a picturesque skiing village in the Styrian Alps about a 45 minute drive from Salzburg.

About Alba:

Alba tooling & engineering GmbH, designs, develops, manufactures equipment and tooling for the manufacturing industry. Research & Development is done to design and manufacture machines which provide safety, efficiency, cost economics, low rejection and low environmental impact. Machines are manufactured to meet CE standards.

Alba, based on customer feedback from mass production, designs aids that help improve process efficiency, safety and reduce rejections as an ongoing support to their customers.

Products:

Automotive Industry:

Instrument Panel Tool

Seat PU Foam Moulds

Arm Rest Tools

Roof Liner Tools

Interior Soft Touch "Surface Technology" Tools

Carbon Fiber Parts for Sports Cars

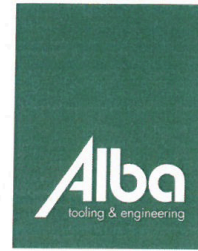
Proto Parts in Composite Fiber and Wood Fiber

Construction Industry:

Moulding Tool for Tile Connection or Interlocking

Sewage Pipe Seal Connector Tooling

Alba Group companies all do production of automotive parts.



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Forstau, Austria, 21st June 2019

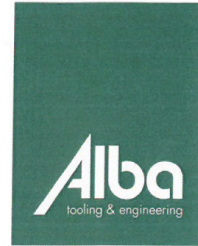
Letter of recommendation

This is to certify that Vania A. Chopra, a student of Modern School Vasant Vihar, New Delhi, India has completed a 3-week internship from 3 June 2019 to 21 June 2019 at Alba Tooling & Engineering GmbH, Forstau, Austria.

She has trained as part of our 3D modeling, project management, carbon fiber production, model making, instrument panel assembly, and fabrication teams. As her supervisor for these three weeks, I can confidently say that Vania is an intelligent and motivated young woman with a sharp intellect and a mechanical bent of mind.

Right from the beginning, it was clear that Vania wanted to learn and absorb as much as possible. Initially I assigned her to learn 3D modelling and concepts behind designing of PU Foam moulds. I was very impressed to note that she would constantly make sketches to comprehend and confirm what our designer showed her. Moreover, her constant questions of how auto vents work in moulds for air pressure release demonstrated her genuine interest in mechanical concepts. Next, she requested that she be allowed to shadow managers so that she could understand the thought process and get a sense of the bigger picture. Noting her enthusiasm, I agreed and assigned her to project management.

She also spent time assisting on the shop floor in our carbon fiber part making facility used for making small run parts for new vehicle developments and sport cars. Her excitement about this technology was evident in the diligence with which she worked with the team. As a member of this team she learnt and worked on fiber mat setting, sealing, vacuum creation, polymer coating and post cure for trimming and finishing of final part. I noticed that that she clearly enjoyed her work and kept to the deadlines given to her and was not afraid of accepting challenging tasks. The questions she asked were intelligent for her age and revealed her grounding of the concepts. My team and I were impressed by her inquisitiveness, skill and ability and I am pleased to note that she was a quick learner.



Overall, I find Vania to be an enthusiastic worker with an eye for detail. Meticulous in her work, with good understanding of technical concepts, she works well within a team and has good communication skills. She has shared her desire to explore the field of engineering and I am confident that she will be well-suited to it as she pursues her dream at your university.

We at Alba Austria wish her the very best.

Regards,

A handwritten signature in blue ink, appearing to read "Klaus Rettenbacher".

Klaus Rettenbacher

Head of Seat Mould Making
Director

A handwritten signature in blue ink, appearing to read "Erwin Pilz".

Erwin Pilz

Managing

Confidential: Alba strictly follows a confidentiality protocol since they design and manufacture new technology products. I have been asked to only share, in brief about my training and all photos are taken and shared with the permission of Alba, Austria. Alba has approved for me to share this report in public domain.

My Training:

3rd June 2019 : Introduction Day

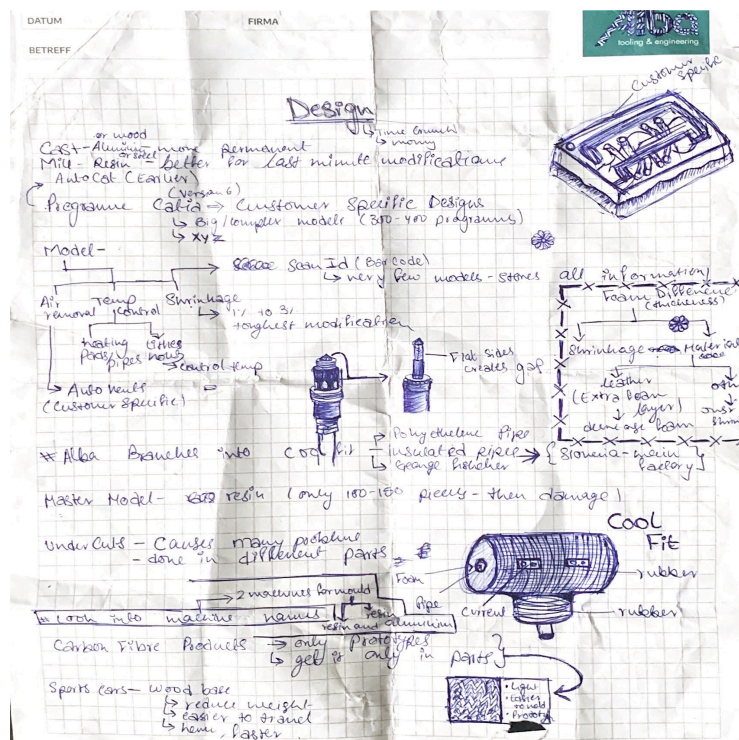
- ⇒ Safety instructions
- ⇒ Dos and Don'ts
- ⇒ Internship work planning
- ⇒ Facility tour
- ⇒ Introduction to team
- ⇒ Safety kit – Safety Shoes, Safety Glasses and Gloves

4th, 5th & 6th June 2019 : AutoCAD and 3D Modeling

- ⇒ Basic introduction to AutoCAD and 3D modeling
- ⇒ Participated in project feasibility meetings – where a cross functional team “CFT” reviewed projects. Discussing the limitation factors, technology to be used and past experiences on issues during such projects
- ⇒ Understood the concept of storage of drawings of commonly and repeatedly used parts in a common file. Commonly called standard parts like nuts, bolts, fasteners, magnets, tube, piping, electrical fitting, holders, mounts, pins, Velcro channels, auto vents, ejectors, connectors etc.,
- ⇒ Understood the functioning of Auto Vents and how they were invented by Alba by listening to a customer problem and working jointly with the customer to solve it.

Design department

Notes during training in Design department



7th, 10th & 12th June 2019 : Carbon Fiber Production

- ⇒ Concept of Carbon Fiber
- ⇒ Fiber mat layering
- ⇒ Chemical mixing
- ⇒ Polymer coating
- ⇒ Sealing
- ⇒ Vacuum creation
- ⇒ Curing
- ⇒ Trimming
- ⇒ Finishing
- ⇒ Measurement



PPE while working in Carbon Fiber Area



Working on Carbon Fiber trimming



Carbon Fiber Team & me

13th, 14th and 17th June 2019 : Model Making (*Photography not permitted in this shop*)

- ⇒ Sika board bundle or block layering and gluing
- ⇒ CNC machine setting, locking and reference points location
- ⇒ CNC Machining
- ⇒ Negative draft parts machining

18th June : PU Moulds

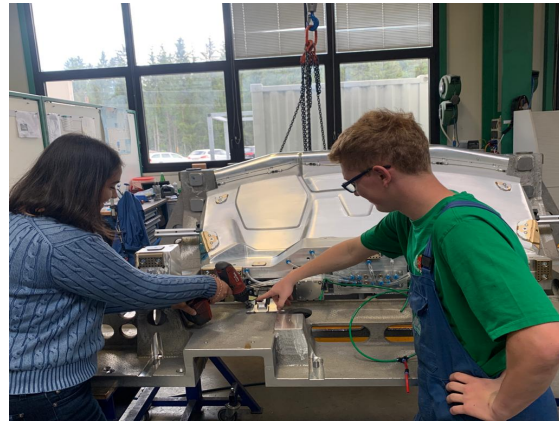
- ⇒ Finishing & Polishing of moulds
- ⇒ Magnet Assembly



Machining of an Arm Rest mould on a 5 Axis VMC

19th & 20th June 2019 : Instrument Panel Assembly

- ⇒ Concept of instrument panel tool and it's functioning
- ⇒ Insert movements and it's pneumatic cylinders service access
- ⇒ Tool safety
- ⇒ Pneumatic tube assembly



IP Tool Assembly work

21st June : Summary and Farewell

- ⇒ Summary meeting
- ⇒ Farewell lunch
- ⇒ Thank you to Alba Austria team



Farewell

Side trip:

During the weekends I had the opportunity to go hiking in the Alps of Styria, visit Dachstein Glacier, wilde wasser waterfall and famous old town and castle at Salzburg.

Experience:

This, for me, was a fantastic opportunity to learn how Austrian engineers work with precision, keeping precision, durability, safety, efficiency and environmental impact in mind.

Note of thanks:

I thank the management and team at Alba tooling & engineering GmbH, Austria and special thanks to Mr. Klaus Rettenbacher for guiding me in an environment and culture that is very different to India during my internship at Alba Austria.

Thank you.