



Title: Future engineers

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When we found this challenge in the online challenger for VEX, it caught our attention, as it would allow us to be in contact with a company or person who would be a reference for us in our future life as professionals, the members of our team, we are all high school students, several of us are graduating this year, and as such we have high hopes of finding mentors to guide us and thus choose the best career. We are passionate about robotics, these competitions have enriched us a lot as they have prepared us for our professional life in various fields.

That is why we set ourselves the task of finding a company that would inspire us, that would be a reference in our city or country in the field of engineering, since all team members want to be engineers, we have thought about studying: mechanical, chemical, systems and mechatronics engineering. Therefore finding a company that had professionals in these areas and worked the concepts of engineering was our goal. We reviewed several among these: krefrigeración S.A.S., TRIPLE AAA, Gecelca and Transelca, but when we found SIMI INGENIERIAS SAS, we saw that it was very close to the foundation, which had managed to position itself in a short time among its competitors.

This company is close to our robotics school, we asked them to allow us to visit them and they accepted, on the internet they have their website: www.similtda.com where we found relevant information. That pushed us to want to learn more about it and its journey in the industry of our country, where they have become a consolidated company, they have several quality certifications, ICONTEC (Colombian Institute of Technical Standards) certifies SIMI Ingenierias in ISO 9001, ISO 14001 and ISO 45001, which is synonymous that it is a solid company that provides its services with quality.

This is how we chose the company SIMI INGENIERIAS SAS, this company has 15 years providing services throughout Colombia, is currently the third largest company in the country in tank calibration, beating multinationals with many more years of experience, is a small but robust company with a very committed staff to provide quality services, have implemented a quality management system, with several standards certified by an entity such as ICONTEC, as well as working under ISO 17025: 2017, which gives them the standards to provide calibration services in tanks, testers, meters, tapes, thermometers, manometers and other calibration equipment, they use the

latest technology to provide their calibration services, the directors are chemical engineers and are always looking for ways to improve their procedures and give customer satisfaction.



DETERMINAMOS LOS REQUISITOS DEL SERVICIO

PLANIFICAMOS CORRECTAMENTE LAS ACTIVIDADES

FINALIZAMOS Y ENTREGAMOS A TIEMPO

Experiencia

Hacemos la diferencia atendiendo sus necesidades de calibración

Por más de 14 años, SIMI INGENIERIAS SAS ha ofrecido servicios de Calibración, Inspección y Mantenimiento que las empresas requieren en sus proyectos. Conocemos con propiedad los requerimientos normativos de la industria del petróleo y nuestro conocimiento hace la diferencia entre un proyecto exitoso y uno costoso.






SC-CER409253 SA-CER4092 SO-CER409251

[Descarga nuestro certificado de acreditación: 10-LAC-052.pdf](#)

PERSONAL	PROCESOS	PROYECTOS REALIZADOS
Nuestro personal tienen sólidos antecedentes en la Inspección y Calibración. Usted obtiene el beneficio de la experiencia que se ha adquirido año tras año, trabajo tras trabajo.	SIMI INGENIERIAS SAS Utiliza sus diferentes sistemas de gestión para planificar y realizar incluso el mayor proyecto para entregar lo que su cliente exige.	Nuestro portafolio incluye la realización exitosa de contratos maestros con Ecopetrol, Cepsa y otros grandes clientes más.

NUESTRO PERSONAL

WALBER BOTO



Director laboratorio

FINALIZAR EL SERVICIO SEGUN LO PLANEADO



¿Que es mas importante que terminar a tiempo?

Nada!!!

Nada nos satisface más que ayudar a nuestros clientes a entregar el trabajo cuando se dijo que se haría. Tenemos un historial comprobado que esto ha sucedido, incluso bajo la presión más intensa de fecha límite. Todos nuestros grandes proyectos han finalizado con éxito..

Figure 1. Company website design

To provide calibration services as stated on their website and as we could see in the visit we made to their facilities, they use a methodology of an engineering design process, where they determine the requirements of the service, plan the activities, finalize and deliver on time. This is expressed in all their procedures, as we can see in the following image:

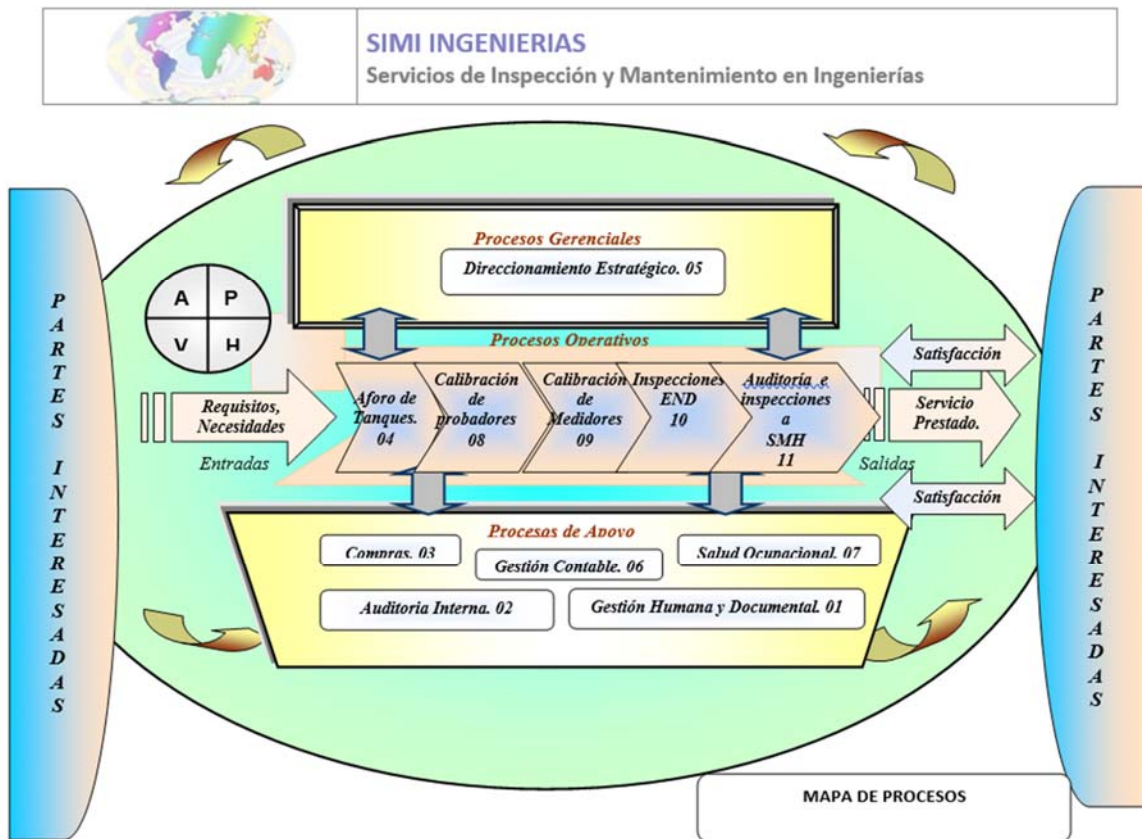


Figure 2. Process map of the company SIMI Ing.

This is the process map of the company SIMI Ingenierias SAS, and you can see that they use a design process methodology, where first the requirements or needs are determined, the activities are performed, while feedback is provided with the results obtained, customer satisfaction, we were very attentive that they handle a PHVA cycle, as we learned and implemented in our engineering notebook. The PHVA cycle effectively contributes to the continuous improvement of the design process while implementing the iterative process. The iterative process allows us to elaborate and refine the robot until we build a robot with which we are satisfied with its fulfillment of the challenge of this season.



Figure 3. PHVA cycle of our design process

Therefore, the way SIMI Ingenierias SAS provides its services is similar to what we do in our process of designing the competition robot: We identify the problem, determine criteria and constraints, brainstorm, select a solution and then build the mechanism and test it.



Figure 4. Iterative design process

Each step of their calibration process, they have documented and have evidence such as formats, mathematical calculations, reports that show how they did it, and that guarantees them to do things right the first time, and if there is an error it is easily detectable because they use validation in each step they perform. Among the professionals they have on staff are chemical, electronic, environmental and industrial engineers. This fills us with hope and satisfaction that if we choose a STEM career such as engineering, in the future we will be able to work in a good company such as SIMI Ing.

We do not have a calibration process, but we do have an engineering notebook, in which we document our design process, there is evidenced all the work we do during our training in robotics and the construction of a competition robot, with this notebook we can review compliance with proposed objectives, to know if we are meeting in time and resources while we build our competition robot.

The challenges that we have encountered during our passage through the VEX robotics competitions, have been preparing us for our professional future, in our robotics classes to create a good robot competition, we have received training in quality principles, report creation, programming in C ++, Python, CAD designs in fusion 360, solid word, so we can say that we have solid foundations in these design programs, since each mechanism that we build for our robot, we first design it in these programs and then the mechanic put them into practice by building according to these design guidelines.

Also by documenting our design process in an engineering notebook, we have learned project presentation techniques, we learned how to determine objectives, make budgets, make a schedule or activity planner and thus better manage our time and resources. All the members of the team, when we finish our high school, want to study a career in engineering. We are driven to pursue a STEM career by all the robotics competitions we have participated in.

The bibliographic resources we used for this research are: www.similda.com
<https://asana.com/es/resources/pdca-cycle>