



SDPI students use 3D printing to help companies accelerate product development cycles.

Fast-Track Vocational Training

FDM Technology Reinvents Chinese Vocational Training Institute

Vocational training has been the ideal place to nurture technical experts in the mechanical or engineering fields. As one of the national elite vocational schools, Shunde Polytechnic Institute (SDPI) strives to develop students' professional skills to prepare them for the ever-changing market dynamics and continuously advancing technology.

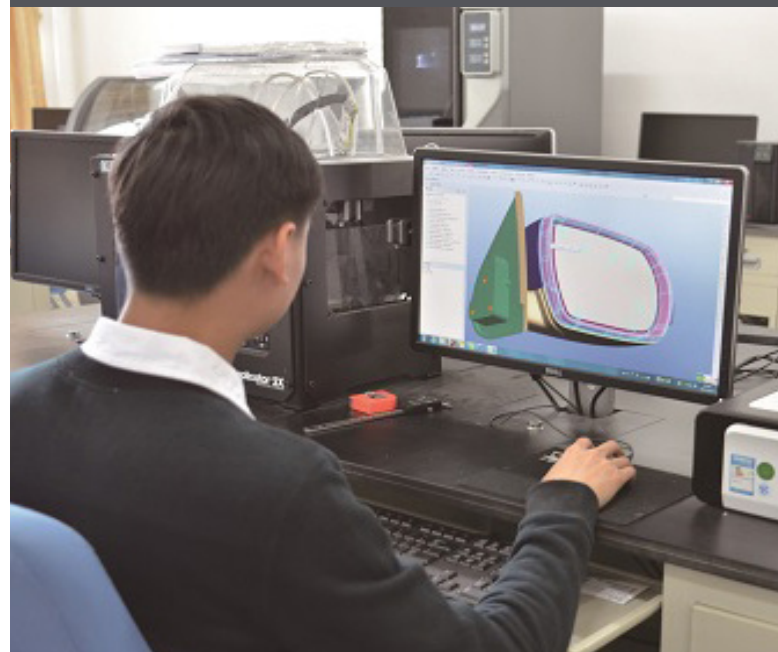
SDPI's School of Mechanical and Electrical Engineering strongly believes in putting theories into practice. The school leverages innovative teaching solutions to spark the interests of students and help them consolidate knowledge in mechanical designs, engineering and electronics. This was why, when management implemented curriculum reform, the school considered adopting a 3D printing system.



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Zhong Ming Xu
Shunde Polytechnic Institute



SDPI student in the mechanical models lab.

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“We see 3D printing as the next big thing across various key industries in China, namely automotive, manufacturing, consumer goods and the medical field,” said Zhong Ming Xu, instructor of the Mechanical Model Laboratory at SDPI. “Being able to master innovative technology will help students gain competitive advantages and understand challenges in the real world. It is important to equip students with the necessary skills during their time at the institute.”

A Great Fit on Campus

Following rounds of research and comparison between various 3D printing technologies and systems, SDPI installed two Stratasys FDM® 3D Printers to meet its teaching needs and growing demand to business services.

Since installing the 3D printers, SDPI has started specialized modules in model designs and professional manufacturing to focus on 3D printing applications in different fields of engineering studies, such as theory, robotics structure and computer-aided manufacturing. These modules provide students hands-on experience operating 3D printers, while the models help them better understand abstract ideas.

Under professional guidance, SDPI students can quickly transform ideas into physical models and carry out design tests. For example, a group of mechanical engineering students were asked to design their own engineering components for a robotics project. Using the 3D printers, the students performed assembly, snap-fit and ergonomic tests. Design errors were easily identified and quickly adjusted and the final design was ready within days instead of weeks.

Unleashing Creativity

A number of Xu’s engineering students have become 3D printing advocates since taking the courses and working with the 3D printers. Some have even established study groups to explore various 3D printing applications other than prototyping.

“3D printing broadens students’ horizons and opens up possibilities for them to think out of the box and enhance their problem-solving skills, as they are able to visualize any problem or test their solutions through 3D printed models. Many students found this new technology truly enjoyable and were eager to learn more,” said Xu.



SDPI students working on 3D printed prototype designs.



3D printed prototype SDPI students created for design validation.

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Collaborations beyond Campus

Beyond the benefits of teaching and learning, the 3D printers have bridged business collaborations between the institute and local enterprises.

SDPI has helped several companies produce 3D printed prototypes for design validation, including a rearview mirror prototype for a local automotive manufacturer. SDPI also used the 3D printers to create different models, including circuit board covers, packaging containers, small tools and creative crafts. Compared to the traditional model-making methods that required two to three days' production time, it took only six to seven hours to 3D print a same model for tests, helping companies accelerate product development cycle and focus R&D capabilities.

With growing awareness and the government's strong emphasis on smart manufacturing and grassroots innovation in China over the past few years, Xu believes that adoption of 3D printing has become the inevitable trend to maximize manufacturing capabilities and optimize operation workflow.

"3D printing is already changing our lives gradually behind the scenes and moving up onto the stage," said Xu. "Putting the next generation of engineers in touch with the innovative technology in their early years will benefit students in their future endeavors as well as the companies or industries that they opt for once they leave school."



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