

ACADEMIA CASE STUDY  
**CHITKARA UNIVERSITY**



International guest workshop  
being conducted at LADDER

### **Challenge:**

Provide students with a multi-disciplinary education while encouraging initiative and entrepreneurship through projects and contests-based learning.

### **Solution:**

Students use Dassault Systèmes' 3DEXPERIENCE® platform in their curricular and extra-curricular activities to increase their employability and to design products that bring value to society.

### **Results:**

With the 3DEXPERIENCE platform, students design and simulate their projects in a virtual environment, an advantage when testing the feasibility of their ideas and preparing their products for manufacture.

## **PROVIDING TECHNOLOGY EXCELLENCE TO INDIAN COMPANIES**

An electro-magnetic glove that helps the visually impaired "see". An electric racing car. A solar-powered golf cart. These are just some of the cutting-edge products students have developed at Chitkara University in Chandigarh, India. The university takes the pulse of Indian industry to design its curriculum. "Indian companies are at a disadvantage when they cannot benefit from technologies that are used elsewhere for lack of knowledgeable students," said Ankit Khurana, Director, Aautosync - Steinbeis Centre for Innovations, Chitkara University. "We strive to make our students proficient in these technologies with multi-disciplinary and industry-relevant courses, which will help Indian companies gain competitive advantage in the global marketplace."

This student-centric approach has made Chitkara University one of the most renowned privately-owned universities in northern India. "We encourage our students to participate in extra-curricular activities in addition to their studies, with special focus on those that benefit society. We believe that innovation and entrepreneurship are essential to the success of every business and this originates in school. This is why we created the "Innovation Box" on campus so that students can submit their ideas for projects or inventions that they wish to pursue. Once a week, our staff review all entries and select the most technically and commercially promising idea to sponsor. Because a brilliant idea does nobody any good unless it is brought to fruition."

As a student at the University of Leeds in the UK, Khurana discovered the Dassault Systèmes' (3DS) 3DEXPERIENCE® applications and remembers how he enjoyed using them throughout his schooling. "I found them fun, intuitive and easy to use, so when I returned to India after graduating, I proposed incorporating the 3DEXPERIENCE platform into

Chitkara's engineering curriculum as well," Khurana said. "There are many automotive companies in the north of India that use the 3DS solutions. Teaching them would give students a competitive advantage and makes them more employable." Currently, between 200 and 240 students are trained on CATIA V6 every three months. "We recently began teaching DELMIA and will cover 3DVIA and SIMULIA in the future as well," Khurana said.

The university's professors have made teaching CATIA a fun experience. They illustrate designs and simulations in a digital environment to show how products evolve from the earliest sketches to the finished model. "It is very motivating for a student to see practical ideas come to life," Khurana said. "Professors also teach them best practices and shortcuts that make them more productive. They appreciate the fact that all the tools are integrated in one platform and that they can develop just about any object in a virtual environment from start to finish."

## **CLIMBING TO NEW HEIGHTS**

Chitkara University has taken entrepreneurship to new levels with its LADDER program, created with the help of Dassault Systèmes and 3DS partner Tata Technologies. 3DS provides the 3DEXPERIENCE platform and Tata Technologies skills and knowledge support. LADDER is a step-by-step approach for developing engineering projects. "Students begin with basic CATIA courses, and then go on to more advanced training. Once they are proficient, they start work on their project - step by step," Khurana said.

"This past year alone, we saw a tremendous increase in the number of students who wanted to launch projects, more than 130% more projects submitted than in 2013. Through



**"Students appreciate the fact that all the tools are integrated in one platform and that they can develop just about any object in a virtual environment from start to finish."**

— Ankit Khurana  
Director, Aautosync - Steinbeis Centre for Innovations  
Chitkara University

our LADDER program, our students become real engineers; they start to ask questions of themselves and of the faculty, discussing technology and methods and finding solutions. They are not only in a receiving mode where they sit in class, take notes and go home. Students and professors exchange, share, and collaborate. Some companies and research laboratories in India have heard about LADDER and recognize the pool of talent they can recruit for their own projects and research. Chitkara University acknowledges the importance of this professional experience, which is why the school grants students credits toward their degree for their participation in industry projects," he said.

### PUTTING IDEAS INTO PRACTICE

Through LADDER, students have launched numerous projects including the design and manufacture of an electric racing car for the Formula Student competition or the design of a solar-powered golf cart to serve as a means to transport equipment from one end of the university's 57-acre campus to the other. Both products were developed using the **3DEXPERIENCE** applications for design, analysis, simulation and machining. "It is very rewarding for a student to see that what was designed in CATIA was what actually resulted after manufacture," Khurana said.

One of LADDER's most emblematic projects is Live Braille, the brainchild of three Chitkara mechanical engineering students. Live Braille is an electro-magnetic glove designed with CATIA for the visually impaired with ultrasonic sensors that detect the distance of objects and which, through haptic feedback, assist them when navigating through a series of obstacles. "When the students showed me their idea at first, I told them it was brilliant but not very practical," Khurana said. "So they asked for a few more days to improve it and came up with a better device. To these students, innovation means finding the shortcomings in something and making improvements. It is a perfect example of the type of socially responsible projects we encourage here at Chitkara," Khurana said.

Live Braille has gone on to win numerous awards. "It was also tested on 52 subjects here in India with 100% satisfaction," Khurana said. "It is fascinating to see a blind person walking and running without having to use a cane. Wherever this technology ends up in the future, we will always be grateful to Dassault Systèmes and Tata Technologies for giving us the initial impetus with LADDER, which provides students with an opportunity to explore their potential, to express their creativity and to transform this creativity into viable products that have a positive impact on society."



Top image: Student working environment at LADDER

Bottom image: Ambience of LADDER at Chitkara University

### Focus on Chitkara University

Privately-owned Indian university providing students with a multi-disciplinary education.

**Curriculum:** Business and hotel management, nursing, medical laboratory technologies, computer science, engineering, architecture

**Students:** 12,000

**Location:** Chandigarh, India

**For more information**  
[www.chitkara.edu.in](http://www.chitkara.edu.in)

### Focus on Tata Technologies India

Global engineering consulting organization specializing in the automotive and aerospace industries. Tata Technologies delivers tailored solutions for engineering and design, product life cycle management and enterprise system integration for the manufacturing sector. Tata Technologies is a company of engineers, led by engineers, with more than 6,300 associates, representing 27 nationalities.

**For more information**  
[web.Tatatechnologies.com](http://web.Tatatechnologies.com)

**TATA TECHNOLOGIES**

## Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 190,000 customers of all sizes in all industries in more than 140 countries. For more information, visit [www.3ds.com](http://www.3ds.com).

