

Hanze University Groningen

For almost two decades, students have benefited from designing with Mathcad in both their academic courses—and ultimately in their careers

OVERVIEW

Hanze University Groningen is the largest university of applied sciences in northern Netherlands, with more than 20,000 students and 2,000 employees.

Most of the buildings are located on the Zernike Complex, an area in the northern sector of the city of Groningen, while other buildings are spread out across the city. One of university's locations is in the city of Leeuwarden—the Academy of Pop Culture. Here, students from the Netherlands and abroad can take advantage of more than seventy programs offered. The university also provides a wide selection of courses outside the regular applied sciences program. Under the name Hanze Service, a variety of courses, post-graduate programs, training, and workshops are offered.

The university has existed since 1993. It was created after a merger of the former State School of Higher Vocational Education Groningen and the former Hanze School of Higher Vocational Education Groningen. However, the history of the institution goes back to 1798, when the Academy for Draftsmanship, Construction, and Navigation was founded.

The Hanze University Groningen started in September 2004 with seventeen schools. In these schools, educational structures are organized according to international examples and modelled flexibly thereafter. Students have greater freedom of choice and can customize their selections from the university's total course offerings.

VISUAL DESIGN ENVIRONMENT

In 1987, the university was introduced to Mathsoft's Mathcad. The most widely used engineering calculation software, Mathcad is a visual design environment that enables engineers in the design phase to retrieve product information from various data files, consult mathematical formulas, and make calculations. Mathcad uses mathematical formulas and standard mathematical notations. An important feature is also the easy-to-use option of recalculating, and of presenting or publishing calculations in multiple formats, including the

Internet. Using Mathcad, engineers can guarantee and verify the quality of their designs.

In 1993, there were already 300 students of the Hanze School of Higher Vocational Education Groningen who were learning to use the application. Mathematician Cees van Wijk, a teacher at the school since 1981, comments, "In the early nineties, Mathcad was used in the four-year study of General Operational Technology. This track prepares students for future careers in a variety of industries, including the chemical industry, electronics, and mechanical engineering. Last year, all departments were merged into the School of Engineering. There are four key subject areas: human technology, technical business administration, electrical engineering, and mechanical engineering."

In 1997, the school moved to the Zernike Complex, where new computer equipment was installed and additional Mathcad licenses were acquired reflecting the school's growth. Today, 1,200 students at the Hanze University use the academic version of Mathcad. The school provides all students who need Mathcad for their studies with a copy of the software to install on their own computers. Those who have a laptop can then use Mathcad at home, at school, or

CUSTOMER SUCCESS PROFILE

Hanze University Groningen

www.hanze.nl

Challenge:

Enabling students to excel in various coursework and ultimately in their careers, including chemical and mechanical engineering and electronics

Strategy:

Leveraging Mathcad's capabilities in the classroom, particularly its standard math notation and "blackboard" interface

Results:

Increased efficiency and accuracy in both the design of treatment facilities and in the learning of related topics within the university classroom

anywhere else.

A NEW WAY OF THINKING

“Becoming familiar with Mathcad takes a little time,” says Van Wijk. “Not because it is a difficult application to use, but because it requires a new way of thinking—unlike Excel, for example. Excel hides certain insights, whereas Mathcad shows what a formula looks like. The package has excellent visualization capabilities, which makes it perfectly suited for educational purposes. Students can use it to develop their own materials independently. Engineers of the future must think more creatively. Mathcad stimulates their creativity—it is not a straitjacket of standard design methods. Mathcad offers many challenges in drawing, editing, and rotating objects with mathematical support—visible or hidden. The projects created are simultaneously complemented with texts, to keep documents readable and intelligible. In addition, Mathcad is an excellent processor of mathematical formulas in combination with text,” according to Van Wijk. The university teacher even thinks a secondary-school version might be very successful, because ‘pupils cannot start early enough using this method.’ “By the time they enter university, students will greatly benefit from the capabilities of Mathcad.”

In the academic world, Mathcad is sometimes compared to an imaginary blackboard, onto which the user can write both simple and complex formulas. With equally imaginary chalk, Mathcad then takes care of the interpretation of these formulas. The advantage is that users need not wipe the blackboard at the end of the lesson. They may leave the information, edit it later, and even use it in different formulas.

More than 1.8 million engineers around the world use the software every day. Loyal users in the Netherlands include multinational corporations such as Philips, Corus, and Rexroth Hydraudyne, as well as TNO and students at the Delft University of Technology and the Hogeschool Utrecht.



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HEADQUARTERS	DENMARK OFFICE	GERMANY OFFICE	ITALY OFFICE	JAPAN OFFICE
{North & South America} 101 Main Street Cambridge, MA 02142-1521 USA T 617-444-8000 F 617-444-8001 sales-info@mathsoft.com	{Denmark and Sweden} Postboks 86 DK-2920 Charlottenlund, Denmark T +45-39451205 F +45-39451209 denmark@mathsoft.com	{Germany and Austria} Steinstrasse 56 81667 München Germany T +49 (0) 89 666 103-0 F +49 (0) 89 666 103-13 germany@mathsoft.com	Via Ampezzo, 2 20156 Milano Italy T +39 02 38004765 F +39 02 38004765 italy@mathsoft.com	{Japan, Korea & China} Burex Kojimachi 3-5-2 Kojimachi, Chiyoda-ku Tokyo 102-0083 Japan T +81-3-3515-2471 F +81-3-5211-5325 jpn-info@mathsoft.com
NETHERLANDS OFFICE	UK OFFICE			
{Benelux} Rotterdamseweg 183C 2629 HD Delft Netherlands T +31 15 268 26 19 F +31 15 268 26 29 netherlands@mathsoft.com	{all other locations} Ground Floor Norwich House Knoll Road Camberley, Surrey GU15 3PR United Kingdom T + 44 (0) 1276 692345 F + 44 (0) 1276 605130 sales-info@mathsoft.com			