

STORY 5

Bridging education and industry: building a BIM-ready generation in South Africa

South Africa's built environment is evolving rapidly, driven by the need for smarter, more efficient, and sustainable ways to design and construct.

Around the world, the AECO sector increasingly relies on BIM and other digital design technologies to improve efficiency, collaboration, and sustainability. Yet, adoption in South Africa remains limited. Barriers such as inconsistent standards, high costs, and a shortage of skilled professionals continue to slow progress.

The solution begins in the classroom.

By introducing learners to digital design early, Autodesk Learning Partner, Modena Design Centres, is helping bridge the gap between education and industry. It is equipping the next generation of engineers, designers, and technicians with the skills and confidence to thrive.

As Karin Smith, Group Marketing Manager at Modena puts it, "Early engagement with digital tools like CAD and Revit allows learners to visualise, model and problem-solve in ways that mirror real industry environments. This not only accelerates their technical proficiency but also instils the mindset needed for effective participation in BIM processes."

Through teacher training, student development, and university partnerships, Modena is helping to create a pipeline of talent ready to meet South Africa's evolving digital needs.

Policy alignment and focus

Modena's initiatives translate strategic and policy priorities into tangible outcomes. They're designed to complement South Africa's national digital skills agenda, such as the National Digital and Future Skills Strategy (2021-2025) and the Department of Basic Education's Digital Education Strategy.

This means the work in schools and universities is closely connected to priorities to build digital capability across all levels of education and training, and promote the integration of technology into classrooms while equipping both learners and teachers with essential 21st-century competencies.

Digital design education is where South Africa's BIM transformation begins. Skills in Engineering Graphics and Design (EGD) and Computer-Aided Design (CAD) provide a solid foundation for BIM competency.

Directly relevant to BIM workflows, they enable learners to:

- Model and visualise projects in 3D
- Collaborate effectively in shared digital environments
- Understand the value of data-driven decision-making

This approach not only enhances students' technical proficiency but also strengthens national readiness for digital construction and manufacturing environments.

Heather McDade, Director Modena Durban says, "Our current focus is on mastering the fundamentals of design technology in education. That's where every transformation begins. By strengthening these skills now, we're preparing the ground for broader BIM adoption in the years ahead."

Reaching schools and tertiary institutions

Working with secondary schools, technical schools and universities, activities focus on educator capacity-building, curriculum integration, and practical skills development. These programmes aim to develop technical proficiency while cultivating the digital literacy and problem-solving skills necessary for integrated BIM workflows.

Jo-Ann Steyn, Training Centre Manager at Modena emphasises, *“Training is about unlocking potential. It’s not just about software – it’s about showing educators and learners how technology can help them create and solve problems.”*

To ensure learners are prepared for digital design careers, Modena partners with a national network of technical schools to upskill teachers and integrate digital design concepts into curricula.

- Supporting educators through advanced training in 2D and 3D digital design tools
- Helping schools align classroom learning with practical industry standards
- Providing assessment models that measure readiness for digital and BIM workflows

Secondary school, Maranatha Christian School, offers a dedicated EGD centre with CAD workstations and 3D printers. Training is voluntary and often undertaken during school holidays, funded by students seeking Autodesk-

aligned certification. Since 2019, 80+ learners have completed AutoCAD Fundamentals courses delivered by Modena, enhancing academic achievement and career readiness.

Autodesk-certified training is offered to students at Durban University of Technology (DUT). The programme is having impact. In 2025 alone, 43 first-year students trained in AutoCAD Fundamentals, 31 second/third-year students trained in Revit Fundamentals, and 43 advanced students completed AutoCAD Advanced courses. DUT plans to expand these programmes across additional departments in 2026, demonstrating scalability and impact.

“Early exposure to CAD and Revit helped me understand design in 3D, not just on paper. I now feel ready to apply these skills in my future career,” DUT Interior Design Student.

National Skills Competition 2025

The 2025 competition, hosted in partnership with the Sasol Foundation, Kagiso Trust, the Department of Basic Education and the Department of Higher Education and Training, brought together nearly 300 learners, educators, and TVET students from all nine provinces.

With an ambition to encourage learners to pursue careers bridging design and construction, the event showcased disciplines central to South Africa’s future workforce, including EGD and CAD, alongside construction, manufacturing,

and electrical trades. Modena supported the digital design categories, ensuring competition tasks reflected industry standards and workflows using Autodesk tools. Participants developed:

- Design thinking and innovation
- Precision and technical skills
- Digital literacy essential for transitioning from 2D drafting to 3D modelling and BIM environments

“Your contribution played a pivotal role in delivering an event that not only celebrated technical excellence but also ignited hope, passion, and purpose among South Africa’s future artisans,” Sasol Foundation & Kagiso Trust



Laying the groundwork for South Africa's digital future

Karin Smith, Group Marketing Manager, says:

"Transformation begins with access – to technology, skills development and opportunities that connect education with industry realities. By combining practical exposure, accredited training and collaboration with educators and institutions, the next generation of designers, engineers and technicians is being equipped to lead South Africa's digital evolution."

"Our work in classrooms, workshops, and competitions lays the groundwork for a smarter, data-driven construction and manufacturing sector tomorrow. We see this as one where BIM isn't just a tool, but a way of thinking, collaborating, and building."

"True transformation is not just about technology, it's about people. When learners gain skills that open doors and educators feel equipped to guide them, we create hope and momentum."

The national curriculum review planned for 2026 is expected to introduce a formal digital component into technical subjects. Modena is supporting readiness for that transition by providing early access to design technology and training where infrastructure allows.

As South Africa continues to invest in digital transformation, such initiatives provide a framework which can be scaled – and offer a blueprint for other regions. They show how education and industry can work hand-in-hand to build a BIM-ready generation equipped for the challenges of tomorrow.

"Participating in the competition gave me the chance to test my school-based knowledge. It broadened my horizons of possible career opportunities and uplifted me mentally to push through the rest of my Grade 11 and 12 school years." Jean Potgieter, Hartbeespoort High School

"I was impressed by the quality of their sketches and the rigor of their design solutions. This event truly bridges classroom learning with industry expectations and career readiness," C. Hattingh, EGD Judge.



Fernandé Marx, an EGD Judge, *"Learners showed strong skills in both their sketches and design solutions. This competition is a powerful bridge between classroom theory and the future of work."*



Modena Design Centres is a South African Autodesk Platinum Partner and Authorised Training Centre with offices across major cities including Johannesburg, Cape Town and Durban. Modena helps educators, students and professionals adopt digital design technologies that connect learning with industry, supporting South Africa's transition to a smarter, more sustainable digital economy.



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