Smart Classrooms

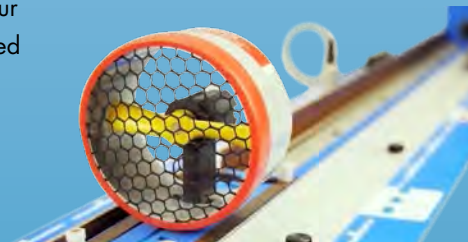
In general Smart Classrooms are often considered as classrooms with a focus on ICT hardware and software and in particular the use of so called "Smart Boards" and other audio/visual equipment. These have now been introduced widely in Africa from Primary to Higher Education level. However the Devotra Smart Classroom concept goes much further than the traditional interpretation of a Smart Classroom and actually brings 21st century education systems to Africa. The Devotra Smart Classroom concept is available for: Primary Education, Secondary Education, Higher Education and TVET.

The Devotra Smart Classroom seamlessly integrates the following components:

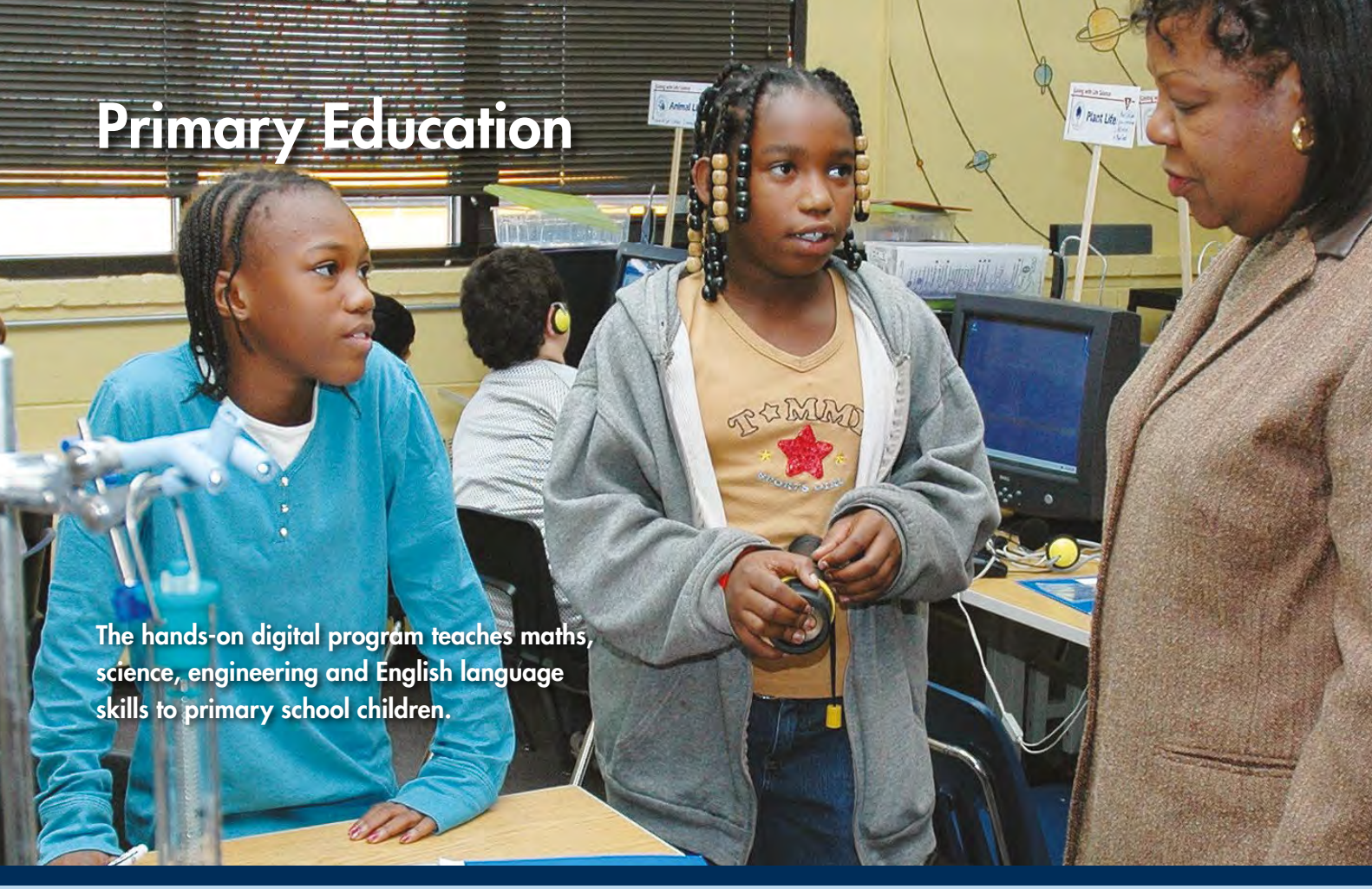
- Digital Resources Library with 8.500 ready-made learning units
- Practical demo and training units linked to the Digital Resources Library
- State-of-the-art ICT laboratory for exploration, investigation, on-screen simulations, virtual experiments and presentations
- Top quality ergonomic designed furniture to create a modern learning environment
- Long term technical support, training and after-sales
- A offline and/or online future proof solution available via a suitable E-learning platform
- Mapping to the existing local curriculum

Maglev workstation

The Devotra Smart Classroom will act as an incubator area for ideas based on industry and labour market requirements. It will change students and teachers mind-sets and will bring innovation, spur creative and catalytic thinking, triggers students' exploration skills, enhance problem-solving based learning and provide the opportunity to teach and learn design, programming, engineering and production skills.



Primary Education



The hands-on digital program teaches maths, science, engineering and English language skills to primary school children.

The Smart Classroom active learning program is composed of creative hands-on tasks and interactive virtual software applications that work together flawlessly. These activities encourage children to explore scenarios by themselves, and then explain to you what they have learned about STEM.

The Devotra Smart Classroom concept for Primary Education programs seamlessly integrates the following components:

- Digital Resources Library with over 1000 lessons
- Including 300 exciting inquiry-based digital investigations and simulators
- Practical demo and training units linked to the Digital Resources Library
- State-of-the-art ICT laboratory for exploration, investigation, on-screen simulations, virtual experiments and presentations
- Top quality ergonomic designed furniture to create a modern and inspiring learning environment
- Long term technical support, training and after-sales
- A future proof solution that is available offline and/or online via a suitable E-learning platform
- Mapping to the local Primary Education Curriculumencourage children to explore scenarios by themselves, and then explain to you what they have learned about STEM.

The typical STEM Lab configuration includes the following resources:

- Life science
- Earth Science
- Physical Science
- Math
- Science practices
- Engineering
- Hardware Kits

Secondary Education

The Smart Classroom Concept will be customised to meet each specific needs on various subjects amongst others: Computer Science, STEM, Science, and Engineering Technology. In order to improve the teaching of the subjects and to prepare the students for a career in the sector of their choice with a blended mix of hardware and software resources.

The Digital STEM Library space provides students with a wide range of educational experiences that integrate science, technology, engineering and mathematics. Modern technologies are featured here, with an emphasis on science. Using the Smart Classroom will encourage better results in a wide range of Level 2 STEM subjects, including GCSE Mathematics and Science.

The Devotra Smart Classroom concept for Secondary Education programs seamlessly integrates the following components:

- Digital Resources Library with over 3000 lessons
- Practical demo and training units linked to the Digital Resources Library
- State-of-the-art ICT laboratory for exploration, investigation, on-screen simulations, virtual experiments and presentations
- Top quality ergonomic designed furniture to create a modern and inspiring learning environment
- Long term technical support, training and after-sales
- A future proof solution that is available offline and/or online via a suitable E-learning platform
- Mapping to the local Secondary Education Curriculum

The typical STEM Lab configuration includes the following 12 themes:

- Biomedical Technology
- Engineering design
- Architectural technology
- Construction engineering
- Engineering design
- Mobile robotics
- Mechatronics
- Manufacturing technology
- Mass transportation
- Industrial robotics
- Electronics technology
- Transportation technology

Higher Education STEM programs

This Smart Classroom Concept can be designed around the local ICT in Higher Education Initiative and the use of Smart Classrooms for Higher Education STEM (Science, Technology, Engineering, Mathematics) programs.

This specific Devotra Smart Classroom concept for Higher Education STEM programs seamlessly integrates the following components:

- ☐ Digital Resources Library with 4.700 ready-made engineering learning units covering Level 1 to 5 engineering qualifications
- ☐ Practical demo and training units linked to the Digital Resources Library
- ☐ State-of-the-art ICT laboratory for exploration, investigation, on-screen simulations, virtual experiments and presentations
- ☐ Top quality ergonomic designed furniture to create a modern and inspiring learning environment
- ☐ Long term technical support, training and after-sales
- ☐ A future proof solution that is available offline and/or online via a suitable E-learning platform
- ☐ Mapping to the local Higher Education Curriculum

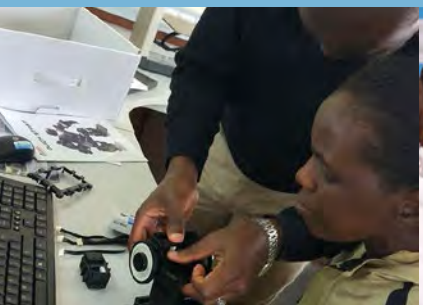
The Smart Classroom Concept for Higher Education can include the following rooms:

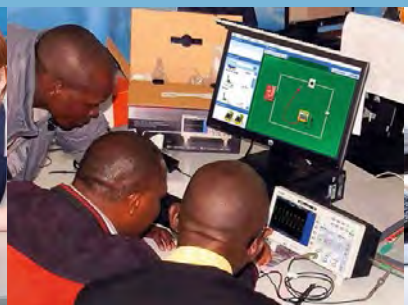
Teacher led presentation rooms

- ☐ Based on maximum 32 students
- ☐ Direct access to Digital Library server for teachers
- ☐ Teacher can present lessons to students by means of presentations
- ☐ 16 workstations direct access to Digital Library server
- ☐ Practical demo and training units linked to the Digital Resources Library
- ☐ Research, Design & Technology
- ☐ Electronics
- ☐ Computer programming
- ☐ Automotive Engineering

Student explore and investigation rooms

- ☐ Based on maximum 32 students
- ☐ 16 workstations direct access to Digital Library server
- ☐ Practical units linked to the Digital Resources Library
- ☐ Focus on: Mechanical & Fluid Power, Rapid Prototyping/ Industrial Manufacturing, Laser cutting/engraving
- ☐ 3D scanning
- ☐ 3D printing
- ☐ CNC simulation
- ☐ CNC manufacturing
- ☐ Machine tools





Technical Vocational Education and Training (TVET)

Introducing a unique TVET teaching and learning concept, combining state-of-the-art technologies, software, simulations, experiments and hands-on practical education, for a future proof environment.

The Smart Classroom concept was originally designed for 10 TVET institutes for the Ministry of Education in Kenya. While studying their TVET education system it became clear that there was a big gap between theory and practical skills of the teachers and students. The conclusion was that by means of the use of Smart Classrooms with an emphasis on experiments, investigations and virtual learning, the teacher and students are better prepared to use practical training equipment.

Now the Smart Classroom provides a world-class learning facility without any equivalents in the world. The Smart Classroom introduces a unique TVET teaching and learning concept, combining state-of-the-art technologies, software, simulations, experiments and hands-on practical education, making the each TVET institute future proof.

It also maximizes the use of the existing equipment at the workshops, amongst others, through:

- Presentations
- Digital lessons
- Investigations
- On-screen simulations
- Virtual experiments
- Practical exercises
- Project and group work

Smart Classroom for TVET includes the following components:

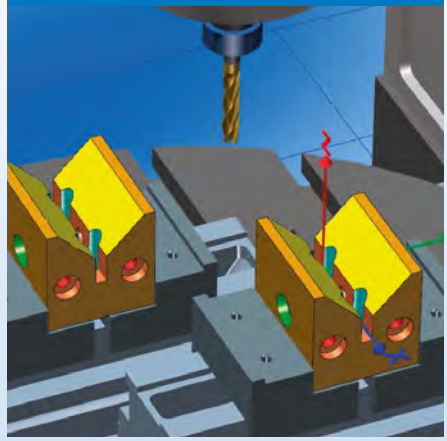
- Project design
- Site-surveys and recommendations
- Creation of a virtual learning environment
- Digital Learning Resources Library
- Small scale practical demo units
- Harnessing emerging technologies
- Integration of ICT based learning in TVET
- Establish IT infrastructure
- Supply, installation and commissioning of equipment
- Training of teachers and IT Classroom managers
- Long term technical support, training and maintenance

Some Smart Classroom workstation examples

RENEWABLE ENERGY

MACHINE TOOLS & CNC

CNC SIMULATION



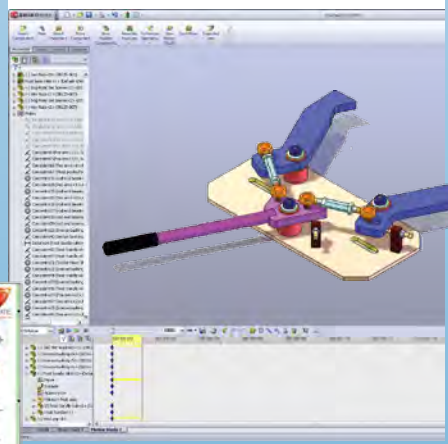
MATERIALS & PROCESSES

INDUSTRIAL CONTROLS

HYDRAULICS

AUTOMOTIVE

2D/3D DESIGN SOFTWARE



PNEUMATICS

Devotra B.V.

Energieweg 2 | 4691 SG Tholen | The Netherlands
P.O. box 18 | 4690 AA | The Netherlands
Tel.: +31 166 609 500 | Fax: +31 166 609 509
export@devotra.nl | www.devotra.nl | www.smartclassroom.nl