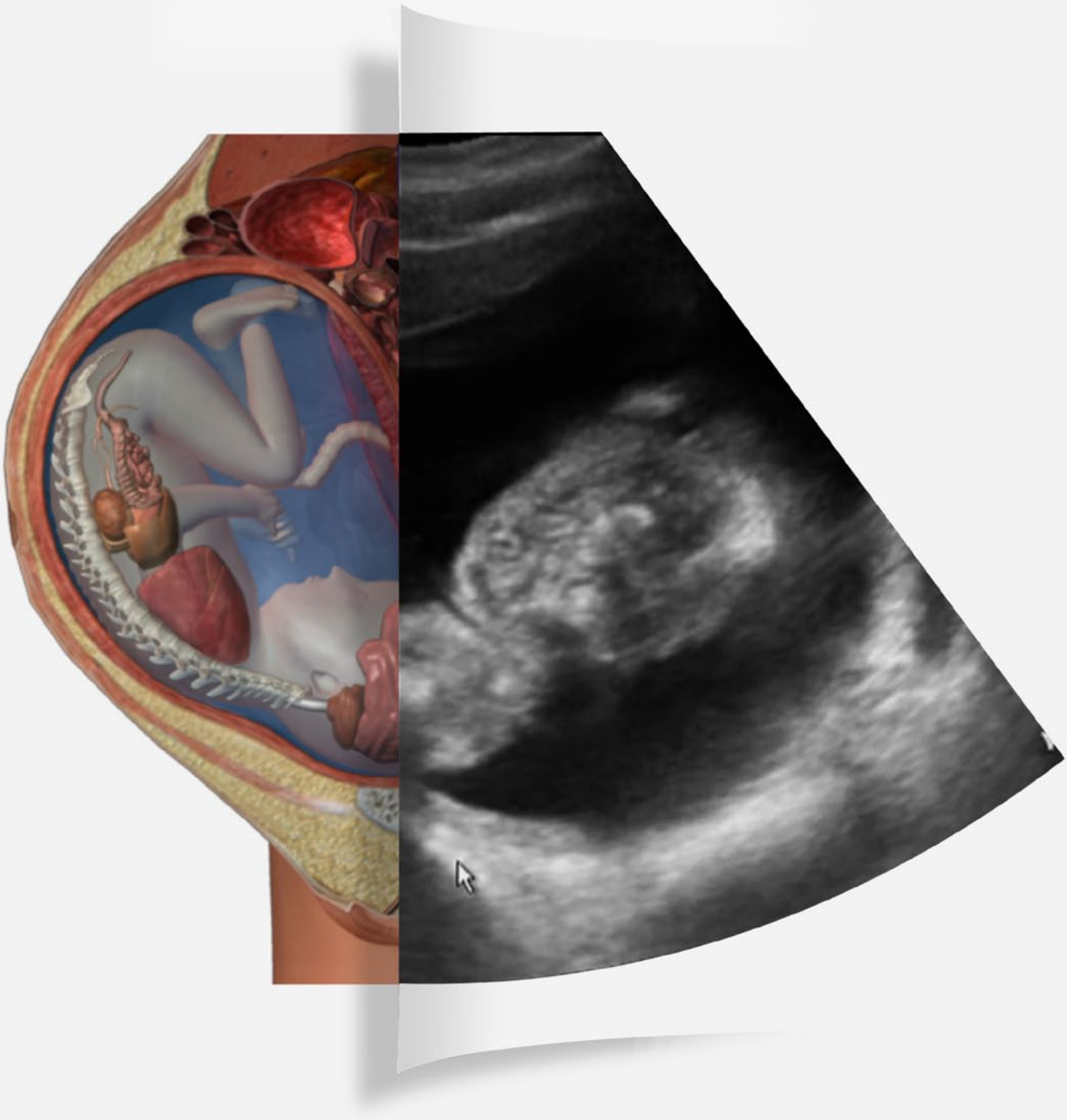
simtics™

learn by doing. online.



Learning about a procedure is only the first step,
learning how to perform a procedure is

IMAGING

# TRANSFORMATIVE

# Improve Training Outcomes with Powerful Web Simulations Integrated with Text, Video, 3D Models

**SIMTICS Imaging™ delivers innovative simulations for learning how to perform ultrasound and radiography procedures in an interactive, real-time, three-dimensional environment that runs in a web browser.**

## The Challenge

The world is facing severe shortages of competent healthcare personnel. Millions of new staff are required globally within the next ten years. In tandem, patient expectations are increasing, while budgets are reducing. The dilemma is how to train such large numbers, many in remote areas, while assuring quality standards are improved, not decreased.

Traditional classroom training has physical limitations and is often based on theory only. The apprenticeship model is costly, uses valuable supervisor time, and depends on available cases. Dedicated simulation hardware has high capital expense, space requirements, high cost of ongoing ownership, and often suffers from usage bottlenecks.

## The Solution

Virtual reality cognitive simulation from SIMTICS offers a safe, effective solution for learning complex medical imaging procedures, and is especially powerful when embedded into an overall training curriculum.

Using a standard personal computer with a web browser, SIMTICS delivers expert, interactive training for students and professionals. An affordable, accessible, easily scalable solution that requires no imaging equipment and no special simulation hardware.

The unique SIMTICS simulator allows trainees to learn procedures anytime, anywhere, in a safe environment. It is available in two modes: Learn Mode provides guidance to the user, and Test Mode checks proficiency in performing the procedure.

The simulator is supported by rich text, 3D anatomy, and video, bringing complex clinical procedures to life in a real-time three-dimensional environment. Quizzes check theoretical knowledge that cannot be tested in the simulator. A personal log book tracks the trainee's complete learning history with scores, time taken, and errors made, which can all be used to assess competency.

The SIMTICS Imaging™ catalogue offers over 60 procedure training modules across across diagnostic medical sonography, cardiovascular sonography and radiography.

## 2.0

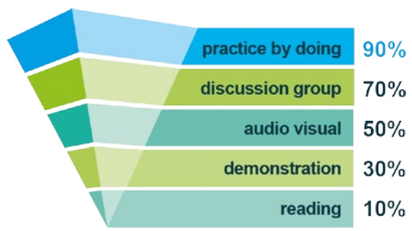
Evidence

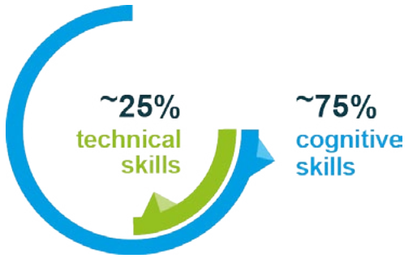
### The Evidence

The Royal Australasian College of Surgeons funded an evaluation study on the use of SIMTICS Integrated Cognitive Simulator at the University of Auckland School of Medicine that was published in 2010.

The study showed favorable training outcomes from using the software and led to a further study being conducted at Imperial College in the United Kingdom, the results of which are available on request. Other papers on the value of cognitive simulation are available.

### Knowledge retention




**~ 75%**

Cognitive skills estimated to be ~75% of the skills required to safely perform procedures*

*Spencer FC., Observations on the teaching of operative technique. Bull Am Coll Surg 1983”

## 3.0

Technology

**SIMTICS holds a unique place in the market with a solution that is driven by education needs and served by technology.**

### The Technology

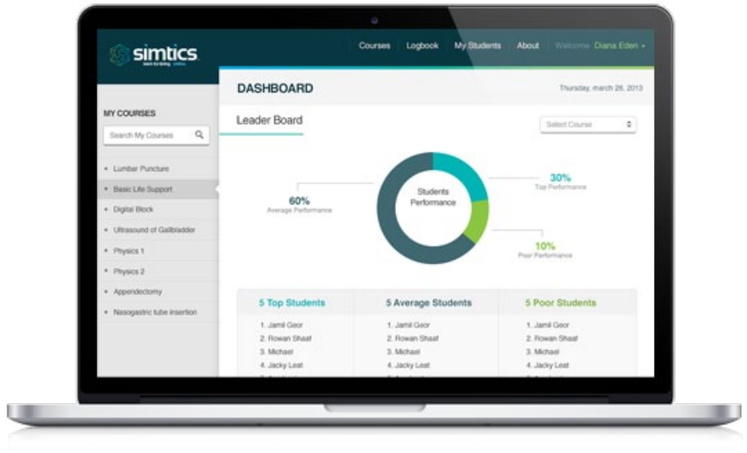
Running as a cloud-based service, SIMTICS Healthcare is available on any modern computer with a good internet connection, and is a highly scalable solution ready for any number of users. All common browsers are supported.

The robust Application Programming Interface enables integration with any learning management system, facilitating user authentication, single sign-on, and transfer of student scores.

SIMTICS offers an iOS app with text, video, anatomy and quiz, which is available from the Apple app store for both iPhone and iPad.

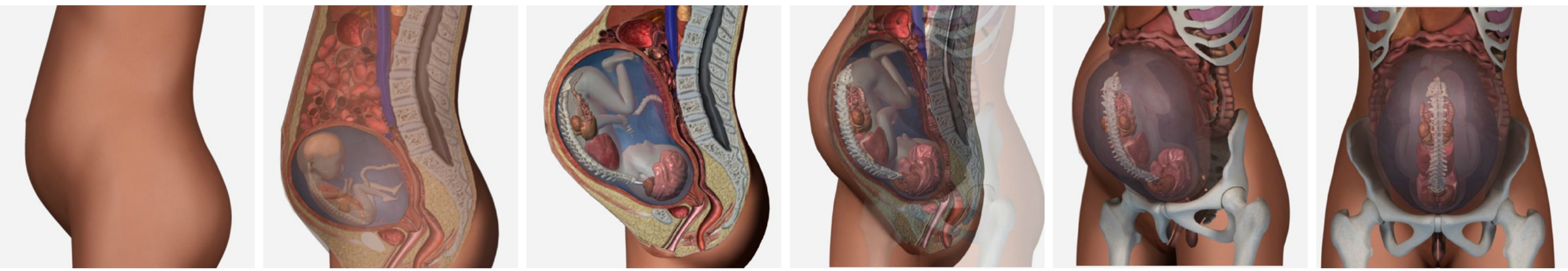
Dual Mouse Interface

For greater realism, an advanced dual mouse option enables trainees to use both hands simultaneously in the sonography simulations.




*"Students can bring their laptops into class and we use SIMTICS in the classroom. Then they can go home and log into it from there. This gives the students more confidence."*

*DMS Program Director, St Louis*



## At SIMTICS we always strive to use technology to improve education outcomes.

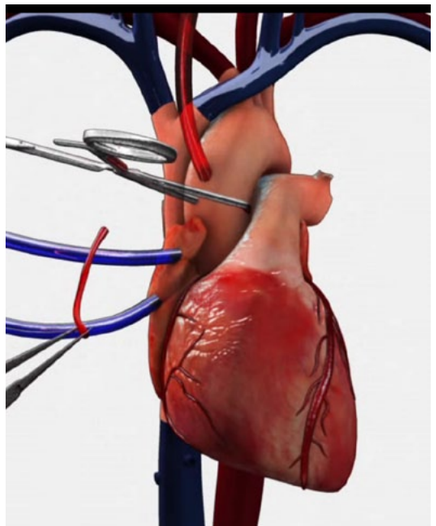
**We're about helping people to learn quickly and retain the knowledge longer. And we want them to enjoy the process along the way.**

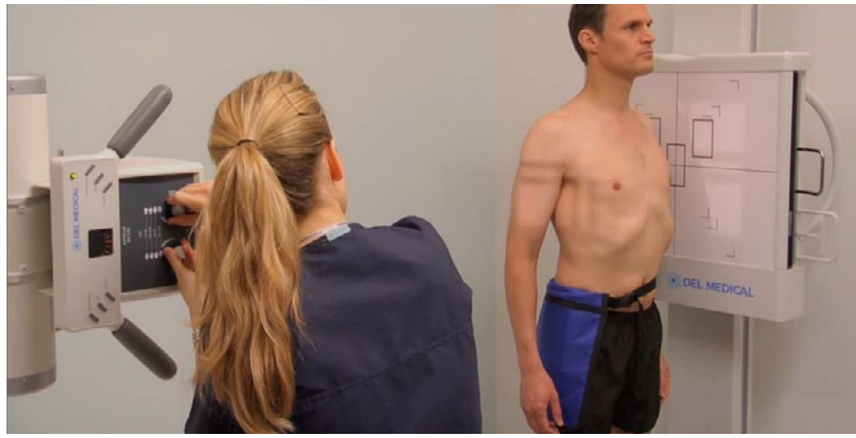
*"The logbook tracks errors that have been made, so students can go back and check where they need to practice. An instructor can track this and look at those focused problem areas."*

*CVT Program Director, Dallas*

*"This system is all-inclusive, it really has everything. The simulations will definitely improve the quality of our education."*

*DMS Program Administrator, Fort Lauderdale*






*"I absolutely love your company and I'm going to order a few more on the topic of echo. I also tell everyone about your company & how amazing your programs are. People know I'm the research person so they always come to me for the best websites and you are on the top of my list! It truly is amazing."*

*A.T.*

4.0

SIMTICS
Features

## SIMTICS features:

- Video demonstration of the procedure, performed by an expert
- Quizzes to test theoretical knowledge
- Personal logbook to track learning history, scores, completion times, and errors made.


- Applied anatomy, with ability to drill-down to a 3D model with zoom and rotate functions
- Video and text are synchronised, allowing easy switching between the two media
- Simulation of the procedure in Learn Mode, with color cues and hints
- Simulation Test Mode to verify competence in performing the procedure unaided
- Rich text describing how to perform the procedure, with step-by-step instructions, illustrations, key terms, and links to external resources.

# 5.0

What makes SIMTICS unique

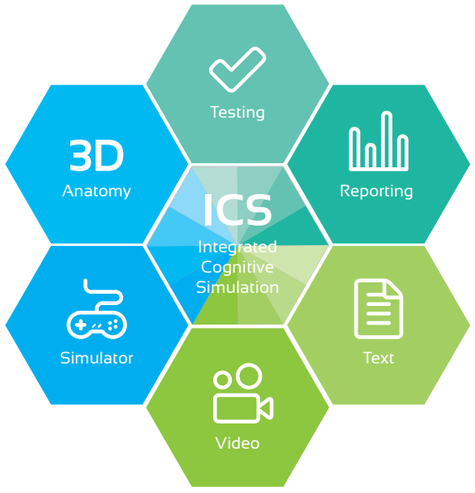
## SIMTICS Integrated Cognitive Simulator is a state-of-the-art, low-cost, online training solution that is easy to deploy.

*A key benefit for our customers is speed of implementation.*

*No special hardware or equipment is required. You can partner with SIMTICS and have a 24/7 web-based simulation environment – for any number of concurrent users – running in a matter of days, not months or years.*

### SIMTICS solution:

- offers a virtual reality simulator on any modern computer with a good web connection
- is highly interactive and provides an engaging and durable learning experience with immediate feedback
- has built-in testing to verify competence
- provides multiple media for optimal learning of procedure
- can be accessed according to the individual user's needs.



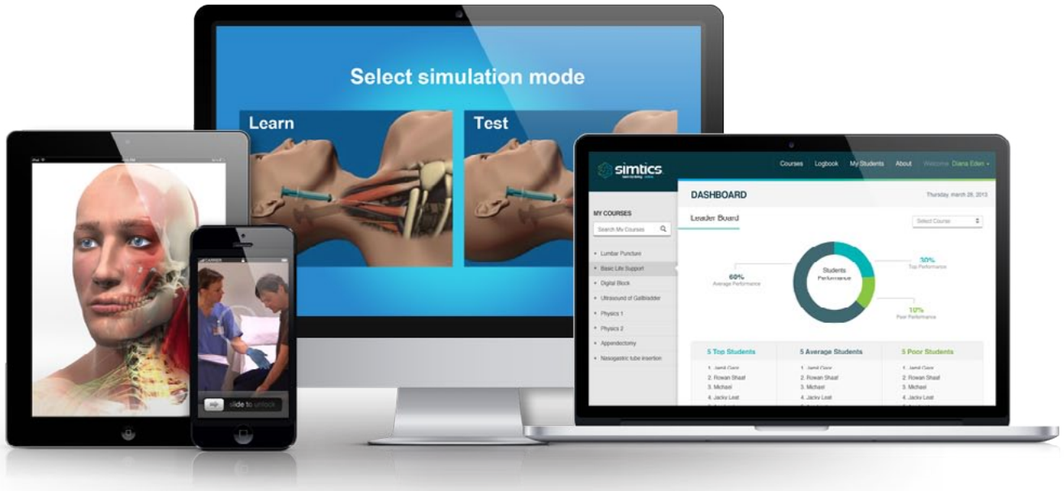

SIMTICS platform
- four different media
  plus testing and reporting
  for optimal performance

### SIMTICS is proven to:

- help trainees become faster, more competent, and more confident compared to those learning only through traditional methods
- enable trainees to learn procedures cognitively, reducing time required on hardware simulators and preparing them better for real-life clinical time
- reduce the resources required for training, including consumables, teacher time, lab time, time on simulation equipment
- reduce capital investment through ability to use existing computer equipment to access a cloud-based solution.

### It delivers:

- cognitive training, required for the safe performance of complex procedures
- consistency in content, approach and assess-ment criteria
- the ability to train remotely and at any time, anywhere
- the facility to 'test your skills as you train', improving learning outcomes
- best-practice learning
- the ability for health professionals to refresh and maintain clinical skills
- objective assessment of competency against pre-defined standards.



# 6.0

Company

## Our aim is to use cognitive training to revolutionize the way professionals learn procedures.

SIMTICS was founded by two doctors - Professor John Windsor, an internationally renowned surgeon and academic, and George Oosthuizen, a general and trauma surgeon. They had a joint goal of using technology to make it easier to learn how to perform clinical procedures.

Having grown up in a remote part of India, John has always been passionate about making education accessible, scalable and affordable. George also wanted to have “everything in one place” to streamline the learning process. These concepts are founding principles that have guided the product design.

A prototype was developed in 2006. The first commercial product was released in early 2008, and the current web version was released in 2010. The company began to establish its reseller network in 2011.

Today SIMTICS services large and small institutional customers in USA, UK, Australia, India and New Zealand. The largest US customer runs up to 40,000 simulations per month.

SIMTICS also supports individual subscribers, both students and professionals, around the globe.

The current SIMTICS catalogue contains over 100 modules, covering procedures in the healthcare fields with over 60 dedicated to the imaging medicine.

Institution and corporate subscriptions are available on an annual or semester basis.

Individual subscriptions are also available from the website for students and healthcare professionals undertaking personal study.

# SIMTICS Healthcare™ Training Catalogue

**7.0**

Catalogue
– Imaging

## SIMTICS Sonography – Diagnostic Medical

- Basic Scan Techniques
- Ultrasound Physics (Two Modules)
- Abdominal Vessels
- Gallbladder
- Gastrointestinal Tract
- Liver
- Pancreas
- Retroperitoneum, Peritoneal Cavity and Abdominal Wall
- Spleen
- Urinary Tract and Adrenal Glands
- Female Breast
- Female Reproductive Organs
- Male Reproductive Organs
- First Trimester and Placenta
- Second and Third Trimesters
- Fetal Growth and High Risk Obstetrics
- Fetal Anomalies
- Pediatric Protocols and Abdomen
- Pediatric Brain
- Pediatric Hip and Spine

## SIMTICS Sonography – Vascular

- Vascular pathology
- Electrocardiography (ECG) -12 lead
- Basic Echocardiography Techniques
- Basic Echocardiography Views
- Lower Limb Arteries
- Lower Limb Veins
- Carotid, Subclavian, and Vertebral Arteries
- Thyroid and Parathyroid Glands
- Vessel Mapping
- Doppler Techniques
- Embryology and Congenital Heart Disease
- Endocarditis and Pericarditis
- TEE and Stress Echo
- Valve Disease
- Wall Motion and Diastolic Function

## SIMTICS Radiography

- Basic Radiographic Techniques
- Chest, Bony Thorax, and Soft Tissues of the Neck
- Upper Extremity and Shoulder Girdle
- Lower Extremity and Hip
- Abdomen and Pelvis
- Skull, Cranial and Facial Bones, and Paranasal Sinuses
- Spinal Column
- Upper and Lower Gastrointestinal Systems and the Biliary Tract
- Central Nervous System, Circulatory System, and Arthrography
- Urinary and Reproductive Systems Non-Routine Projections for Chest, Neck, Upper Extremity and Shoulder Girdle
- Radiographic Imaging
- Radiographic Processing
- Fluoroscopy and Interventional Radiology
- Computed Tomography and Magnetic Resonance Imaging
- Mammography, Bone Densitometry, and Quality Control
- Radiographic Image Analysis
- Pharmacology and Drug Administration
- Computed Radiography
- Digital Radiography and PACS

## Learning about a procedure is only the first step, learning how to perform a procedure is

# TRANSFORMATIVE

**"I'm amazed by the depth of instruction in your modules. I've been looking for software like this for 12 years. I had a picture in my head of what I wanted, and finally I've found it."**

**S.D. Sonography School Director, Sacramento**


| | |
|---|---|
| Address: | Simtics Limited |
| | PO Box 33871, Takapuna |
| | Auckland 0740, New Zealand |
| Phone: | + 64 9 280 3633 |
| E-mail: | info@simtics.com |
| Website: | **simtics.com** |
| YouTube: | **youtube.com/user/simtics** |
| LinkedIn: | **linkedin.com/company/simtics-ltd** |