

## Digital Dentistry and CAD/CAM solutions

One full day  
**9-10 hours**

### Implant System

- Cortex Dental Implants Internal Hexagon connection
- Cortex Dental Implants Conical Connection connection

### Course overview

The course is designed for clinicians who want to offer their customers the guided surgery services and CAD/CAM prosthetic solutions.

### Purpose

To acquire the knowledge and the training necessary to start the guided surgery procedure and the CAD/CAM solutions by using Cortex Digital System.

### Learning outcome

The attendees should:

- Discover the Digital system, including guided surgery and CAD/CAM prosthetic solutions.
- Learn the digital work-flow and protocols.
- Learn the virtual implant planning, guide design and manufacturing.
- Learn the guided surgery kit and the components.
- Know how to use the guided surgery kit
- Learn the CAD/CAM system and the products line.
- Learn the unique digital abilities of the system.
- Know the collaboration process with the dental lab.

### Participants

General and specialist Dentists who want to develop their skills and knowledge in Guided surgery and CAD/CAM solutions by using Cortex System.

### Lectures & responsibility

The courses are presented by a clinician trained and experienced in Digital Dentistry, along with support from Cortex project manager and local representatives.

### Lecturer material

- Speaker notes (for presentation)
- Introduction presentation (to be supplied by the Cortex representative)
- Hands-on presentation.
- Hands-on and models (including all required items for the practice).
- PowerPoint template, Cortex branded

**The lecturer should utilize the PowerPoint presentation as a template for the program and can integrate their material and cases into the presentation (after verifying the additional materials with the product global manager).**

### Participant material

- Speakers notes (PowerPoint slides as notes pages), to be distributed with other course materials.
- Marketing materials: Cortex products catalog, CAD/CAM catalog, Guided surgery user manual, Guided surgery kit & CAD/CAM flyers.
- Hands-on printed material (including the drilling protocol), should be distributed prior to the workshop(s).
- Hands-on virtual materials, to be distributed after the workshop.

### Lecturer material

Digital vs. Traditional planning methods.	
Different guided surgery methods.	
The meaning of accuracy in the guided implantology.	
Introduction to Cortex Digital System	
Work-flow and protocols for partial and fully edentulous cases	
Virtual implant planning work-flow	
Digital implant libraries	
Surgical guide design and manufacturing	
Cortex titanium sleeves for guided surgery	
Cortex guided surgery kit- theoretical chapter	
Hands-on	
Case reports	
CAD/CAM components	
CAD/CAM Digital libraries	
Model analog: plaster model and digital	

Equipment and components	No. of copies
- Surgical Motor	1 per 3 participants
- Guided Surgery kit <b>CK-GS11</b>	1 per 3 participants
- Practicing Model  AC-FULLMODEL3	1 per participant
- Demo implants (3.8 /11.5mm) None sterile Demo	3 per participant
- Manuals:	
- Guided Surgery user manual	1 per participant
- Guided surgery kit & CAD/CAM flyers	1 per participant
- PowerPoint handouts with note fields	1 per participant

Sales	No. of copies
Sales offer presented and distributed at the end of day 1 contains:	
- Sales brochures	1 per participant
- Sales offer containing a guided surgery kit	1 per participant
- Digital solutions package + implants	1 per participant

Confirmation Letter
<ul style="list-style-type: none"> <li>- Do you have an experience in guided surgery?</li> <li>- How many cases did you plan/executed?</li> <li>- Which system did you use?</li> <li>- Do you have a digital work-flow in your clinic? Do you use an intra-oral</li> </ul>

<b>1. Introduction</b>	<b>20 min.</b>
<b>Responsible:</b> CORTEX Representative and Lecturer	
<p><b>Purpose:</b>          Personal introduction that includes the professional background.          The objective of the intro/closing sections is to create the CORTEX <i>family</i> feeling, give participants confirmation that they made the correct choice by selecting a CORTEX course. It will clearly show the benefits for the participants, and sets the stage for the course.</p>	
<p><b>Learning outcome:</b>          The participants should:</p> <ul style="list-style-type: none"> <li>- Be ensured that CORTEX Digital system is the worldwide leader in digital solutions and training and education.</li> </ul>	

#	Content	Description
1	DVD – “CORTEX History”. 4.5 minutes.	<ul style="list-style-type: none"> <li>- The DVD to be shown is the “CORTEX History”</li> <li>- The purpose of the movie is to start conveying a feeling of “Yes! I am in the right place”</li> </ul>
2	CORTEX representative introduction. 4-6 minutes.	<ul style="list-style-type: none"> <li>- Course introduction, PowerPoint presentation, and speaker introduction</li> </ul>
3	Speaker presentation. 4 minutes.	<ul style="list-style-type: none"> <li>- Speaker welcomes the participants</li> <li>- Speaker presents him- or herself, the participants present themselves to each other (if appropriate).</li> <li>- If appropriate, the participants should share their digital experience, if any.</li> </ul>

<b>2. Digital vs. Traditional planning method.</b>	<b>10 min</b>
<b>Responsible:</b> Lecturer	
<b>Purpose:</b> To provide a comprehensive knowledge of the difference between the two case planning methods and the advantages of the virtual planning method.	
<b>Learning outcome:</b> The participants should: Understand the different methods of case planning and to know the advantages of the digital (virtual) planning method.	

#	Content	Description
1	CBCT visibility	- 3D & 2D view
2	Discussion about the two different treatment approaches. Main advantages of the digital system are: prosthetic driven planning and exact execution of the virtual planning inside the patients` mouth. Planning links to the patients mouth by the surgical guide and guided surgery execution.	- Top-down design - Efficient case diagnostics - Pre-clinical case planning - Exact execution with a use of the surgical guide and special surgical kit.

<b>3.</b>	<b>Different guided surgery methods</b>	<b>10 min.</b>
<b>Responsible:</b> Lecturer		
<b>Purpose:</b> To present the difference between the static & dynamic navigation methods.		
<b>Learning outcome:</b> The participants should: <ul style="list-style-type: none"> <li>- Understand the basic differences between the two methods of guided surgery.</li> </ul>		

#	Content	Description
1	Requires CBCT	
2	Planning work-flow	
3	Link possibilities to CAD/CAM	
4	Guided surgery components	
5	Clinical work-flow	
6	Costs	
7	Learning curve	
8	Time consumption	
9	Mobility	
10	Out sourcing	
11	Pre-clinical planning	

<b>4. The meaning of accuracy in the guided implantology</b>	<b>15 min</b>
<b>Responsible:</b> Lecturer	
<b>Purpose:</b> To provide a comprehensive knowledge about the meaning of accuracy parameters in all ingredients and the stages of the system.	
<b>Learning outcome:</b> The participants should: Understand the rational behind the accuracy level and its influence on the final out-come.	

#	Content	Description
1	Key word: ACCURACY Influenced & depends by: Digital Files Software Printer Surgical guide Sleeve placement Drills & tools Technique etc....	
2	Accuracy check and deviation parameters.	- Comparison between free hand and fully guided surgery performance.



<b>5. Introduction to Cortex Digital System</b>	<b>10 min.</b>
<b>Responsible:</b> Lecturer	
<b>Purpose:</b> To introduce Cortex Digital System	
<b>Learning outcome:</b> The participants should: - know all components of the system and the supporting equipment (3D printer and milling machine): Planning stage, manufacturing stage, surgical kit for guided procedures, CAD/CAM prosthetic solutions. - Understand the meaning of accuracy parameters in implantology using Cortex digital system.	

#	Content	Description
1	<p>Introduction of the Cortex Digital System. From planning to temporization. Explanation of the top-quality planning software and equipment. All parameters influence the accuracy level... for Cortex system the accuracy parameters are optimal all the way, in order to receive the best final results. Non compromising system.</p>	<ul style="list-style-type: none"> <li>- Fully digital solution</li> <li>- 3Shape software</li> <li>- Stratasys/3D systems Printers- 16 microns layer thickness</li> <li>- Milling machine- Imes Icore i350 Pro load. 5 axes. 10 microns milling accuracy</li> </ul>



<b>6. Work-flow and protocols for partial and fully edentulous cases.</b>	<b>60 min.</b>
<b>Responsible:</b> Lecturer	
<b>Purpose:</b> To provide a comprehensive knowledge of the required DATA base for the case planning, the work-flow steps working with the digital Lab.	
<b>Learning outcome:</b> The participants should: <ul style="list-style-type: none"> <li>- Know which digital files are required for the case planning.</li> <li>- Understand the work-flow steps and communication paths with the digital Lab.</li> <li>- Know the principles of radiological 2D diagnostics according to the grayscale.</li> </ul>	

#	Content	Description
1	Partial edentulous cases: CBCT scan Model STL Wax up STL Work order	<ul style="list-style-type: none"> <li>- required DATA</li> <li>- CBCT protocol</li> <li>- digital and traditional impressions</li> <li>- Wax up preparation</li> <li>- work order</li> </ul>
2	Fully edentulous cases- dual scan technique & radio-opaque markers	<ul style="list-style-type: none"> <li>- protocols</li> <li>- The meaning of the 3D markers</li> <li>- The use of the files</li> </ul>
3	Supporting materials and documentations	<ul style="list-style-type: none"> <li>- CBCT referral</li> <li>- Digital work order form</li> <li>- Communication and DATA sharing with the digital lab</li> </ul>
4	Work-flow steps with the digital lab	<ul style="list-style-type: none"> <li>Step by step chart</li> <li>Marketing Video- Cortex Digital Solutions</li> </ul>

<b>7. Virtual implant planning work-flow</b>	<b>20 min.</b>
<b>Responsible:</b> Lecturer	
<b>Purpose:</b> To provide a comprehensive knowledge of the virtual implant diagnostics and planning.	
<b>Learning outcome:</b> The participants should: <ul style="list-style-type: none"> <li>- Know how to diagnose and analyze the shown virtual information.</li> <li>- Know the steps and sequence of the virtual case planning.</li> <li>- Understand the meaning of accurate digital files in virtual software planning and final out-come.</li> <li>- Know the advantages of the virtual implant planning</li> <li>- Know the advantages of digital case planning approach.</li> </ul>	

#	Content	Description
1	Virtual planning work-flow	<ul style="list-style-type: none"> <li>- DATA uploading</li> <li>- Overlapping DATA</li> <li>- Explanation about the 3D case planning and overlapping Data.</li> <li>2D slices: Sagittal, Frontal, Axial</li> <li>- Basic principles of a virtual case planning.</li> </ul>
2	Advantages or a virtual implant planning	<ul style="list-style-type: none"> <li>- 3D visualization</li> <li>- Safety zone</li> <li>- Prosthetically driven planning</li> <li>- Full control of the implant position in all directions</li> <li>- Bone density information for each implant</li> </ul>
3	Advantages in digital case planning approach	<ul style="list-style-type: none"> <li>- Predictable out-comes</li> <li>- Pre-clinical planning simulations</li> <li>- Major stress reduction factor</li> </ul>

<b>8. Digital implant Libraries</b>	<b>10 min.</b>
<b>Responsible:</b> Lecturer	
<b>Purpose:</b> To provide a comprehensive knowledge of the virtual implant libraries in the software.	
<b>Learning outcome:</b> The participants should: <ul style="list-style-type: none"> <li>- Know the purpose of the digital libraries and their use.</li> <li>- To know in which softwares Cortex implant system is integrated.</li> </ul>	

#	Content	Description
1	Certification & integration into the software	
2	How to use the library	<ul style="list-style-type: none"> <li>- Implant type</li> <li>- Implant diameter</li> <li>- Implant length</li> <li>- Fixation pin</li> <li>- Virtual planning with Saturn and wide platform implants- partially guided protocol.</li> <li>- Cortex sleeves</li> </ul>
3	Available softwares and libraries in the integration process	<ul style="list-style-type: none"> <li>- 3Shape</li> <li>- 3Diemme</li> <li>- Zirkozahn</li> </ul>

<b>9.</b>	<b>Surgical guide design and manufacturing</b>	<b>30 min.</b>
<b>Responsible:</b> Lecturer		
<b>Purpose:</b> To provide a comprehensive knowledge of the virtual guide design and the manufacturing process.		
<b>Learning outcome:</b> The participants should: <ul style="list-style-type: none"> <li>- Know how the surgical guide is designed in a proper way.</li> <li>- To understand the manufacturing process.</li> <li>- To know the utilized lab equipment.</li> <li>- To know the quality and accuracy parameters requirements.</li> </ul>		

#	Content	Description
1	Virtual guide design	The virtual guide planning: <ol style="list-style-type: none"> <li>1. General geometry</li> <li>2. Strengthening bars</li> <li>3. View windows to control the fit of the guide to the model/mouth</li> <li>4. Orientation marks (used in a case of Int. Hex implants to orienteer the flat side of the Hex.)</li> <li>5. Patient ID mark</li> </ol>
2	Types of guide support	<ul style="list-style-type: none"> <li>- Teeth supported</li> <li>- Mucosal supported</li> <li>- Bone supported</li> </ul>
3	Guide manufacturing	<ul style="list-style-type: none"> <li>- 3D PolyJet printers- Cortex certified lab</li> <li>- Chair side printers, like Formlabs</li> <li>- Technical aspects of quality and accuracy of the guide and the model</li> </ul>

<b>10. Cortex titanium sleeves for guided surgery</b>	<b>15 min.</b>
<b>Responsible:</b> Lecturer	
<b>Purpose:</b> To provide a comprehensive knowledge of the guiding titanium sleeves and the mechanical-engineering concept	
<b>Learning outcome:</b> The participants should: <ul style="list-style-type: none"> <li>- Know the types and the technical parameters of the guiding sleeves</li> <li>- Understand the advantages of the sleeve design</li> <li>- Know the sleeve cementation procedure</li> <li>- Understand the mechanical-engineering concept</li> </ul>	

#	Content	Description
1	Geometry of the sleeve	<ul style="list-style-type: none"> <li>- Technical parameters</li> <li>- Insertion instructions</li> <li>- Advantages and stability</li> </ul>
2	Relation between the sleeve and the drill	<ul style="list-style-type: none"> <li>- Mechanical- engineering concept</li> <li>- Inputs &amp; Outputs during the drilling procedure.</li> <li>- Irrigation path</li> <li>- Hex irrigation</li> <li>- Irrigation demonstration video by Dr. Orlando Alvarez (1.5 min)</li> </ul>
3	Guide manufacturing	<ul style="list-style-type: none"> <li>- 3D PolyJet printers- Cortex certified lab</li> <li>- Chair side printers, like Formlabs.</li> <li>- Technical aspects of quality and accuracy of the guide and the model</li> </ul>

<b>11. Cortex guided surgery kit</b>	<b>45 min- theoretical chapter + 1h 15min- hands on session</b>
<b>Responsible:</b> Lecturer	
<b>Purpose:</b> To provide a comprehensive knowledge of the guided surgery kit components, use and advantages.	
<b>Learning outcome:</b> The participants should: <ul style="list-style-type: none"> <li>- Know the components that includes in the surgical kit.</li> <li>- Know the attended use of each component</li> <li>- Understand the advantages of guided surgery kit</li> <li>- Know the drilling sequence in regards to different clinical cases</li> </ul>	

#	Content	Description
1	Description of the surgical kit	<ul style="list-style-type: none"> <li>- Explain the advantages of a single universal kit</li> </ul>
2	Description of the components	<ul style="list-style-type: none"> <li>- The drills &amp; the tools</li> <li>- Guided surgery video (7 min)</li> <li>- Special geometry, coating, work-flow.</li> </ul>
3	Advantages of the surgical kit	<ul style="list-style-type: none"> <li>- Geometry</li> <li>- Quality</li> <li>- Accuracy</li> </ul>
4	Hands-on- (recommended to take place immediately after the educational chapter)	<ul style="list-style-type: none"> <li>- Hands-on PPT</li> <li>- Hands-on session on special models for guided surgery</li> </ul>

<b>12. Case reports</b>	<b>30 minutes</b>
<b>Responsible:</b> Lecturer	
<b>Purpose:</b> To provide a comprehensive and clear case reports, from virtual case planning to clinical execution.	
<b>Learning outcome:</b> The participants should: <ul style="list-style-type: none"> <li>- Know the work flow steps from virtual case planning to execution</li> <li>- Understand the simplicity of the clinical execution procedure</li> </ul>	

#	Content	Description
1	Demonstration of narrow/limited bone volume	- Explain the digital abilities & advantages in this case
2	Demonstration of temporization case on angulated Multi-units	- Explain the digital abilities & advantages in this case. - Explain the uniqueness of this digital solution in comparison to competitors
3	Demonstration of fully digital work-flow	- Show a case from virtual implant planning to provisional restoration in the frontal/aesthetic zone
		- All cases should be supported by clinical video documentation



<b>13.</b>	<b>CAD/CAM components</b>	<b>40 minutes</b>
	<b>Responsible:</b> Lecturer	
	<b>Purpose:</b> To provide a comprehensive knowledge of Cortex CAD/CAM components & solutions	
	<b>Learning outcome:</b> The participants should: <ul style="list-style-type: none"> <li>- Know the available prosthetic components</li> <li>- Know the work flow of each component and its attended use</li> <li>- Understand digital abilities &amp; solutions provided by the system</li> </ul>	

#	Content	Description
1	<ul style="list-style-type: none"> <li>• Ti-bases</li> <li>• Pre-mills</li> <li>• Scan Bodies</li> <li>• Multi- unit system</li> </ul>	<ul style="list-style-type: none"> <li>- Basic information about the components</li> <li>- Explain how to use each component in dental lab &amp; clinics.</li> <li>- Explain the advantages of each components in comparison to competitors.</li> </ul>
2	Custom made prosthetic solutions	<ul style="list-style-type: none"> <li>- Explain which raw, materials and restoration types are available for order in the digital lab</li> </ul>
3	Clinical cases	<ul style="list-style-type: none"> <li>- Custom made prosthetic design</li> <li>- Clinical results</li> </ul>
4	Angulated multi-unit system	<ul style="list-style-type: none"> <li>- Case reports (including temporization on angulated multi units).</li> <li>- Explain the abilities &amp; the advantages of the system</li> </ul>

<b>14. Digital implant Libraries</b>	<b>10 min.</b>
<b>Responsible:</b> Lecturer	
<b>Purpose:</b> To provide a comprehensive knowledge of the virtual prosthetic libraries in the software.	
<b>Learning outcome:</b> The participants should: <ul style="list-style-type: none"> <li>- Know the purpose of the digital libraries and their use.</li> <li>- To know in which softwares Cortex CAD/CAM system is integrated.</li> </ul>	

#	Content	Description
	Available softwares and libraries in the integration process	<ul style="list-style-type: none"> <li>- 3Shape</li> <li>- 3Diemme</li> <li>- Zirkonzahn</li> </ul>

<b>15. Model analog</b>	<b>20 min.</b>
<b>Responsible:</b> Lecturer	
<b>Purpose:</b> To provide a comprehensive knowledge of the plaster and digital model analog.	
<b>Learning outcome:</b> The participants should: <ul style="list-style-type: none"> <li>- Know the purpose of the model analog.</li> <li>- Know the manufacturing process.</li> <li>- Know the utilization variety.</li> </ul>	

#	Content	Description
1	Traditional model analog	<ul style="list-style-type: none"> <li>- Attended use</li> <li>- Manufacturing process</li> <li>- Advantages</li> </ul>
2	Digital model analog	<ul style="list-style-type: none"> <li>- Attended use</li> <li>- Design and manufacturing process</li> <li>- Advantages</li> </ul>

#	Content	Description
1	Final summery	<ul style="list-style-type: none"> <li>- Accuracy parameters of Cortex digital system</li> <li>- Advantages</li> <li>- Work flow (presentation of the digital lab video- 2 min)</li> </ul>
2	Wrap-up	<ul style="list-style-type: none"> <li>- An essential summary of the key issues of the course</li> <li>- Follow-up the sales offer presented to the participants at the end of the first day (attractive)</li> <li>- Time for questions and discussions</li> </ul>
3	Course evaluation	<ul style="list-style-type: none"> <li>- Distribute the course evaluation questionnaire to each of the participants to collect their feedback and input for improvement</li> <li>- Distribute a printed and signed course certificate to each participant</li> </ul>

#### Digital Solutions Course – 9-10 hours

Time	#	Content
08.30 – 08.50	1	Introduction
08.50 – 09.00	2	Digital vs. Traditional planning methods.
09.00 – 09.10	3	Different guided surgery methods.
09.10 – 10.25	4	The meaning of accuracy in the guided implantology.
10.25 – 10.35	5	Introduction to Cortex Digital System
10.35 – 10.50	6	Coffee break
10.50 – 11.35	7	Work-flow and protocols for partial and fully edentulous cases
11.35 – 11.55	8	Virtual implant planning work-flow
11.55 – 12.05	9	Digital implant libraries
12.05 – 12.35	10	Surgical guide design and manufacturing
12.35 – 12.50	11	Cortex titanium sleeves for guided surgery
12.50 – 14.00	12	Launch
14.00 – 14.45	13	Cortex guided surgery kit- theoretical chapter
14.45 – 15.45	14	Hands-on
15.45 – 16.15	15	Case reports
16.15 – 16.45	16	CAD/CAM components
16.45 – 16.55	17	Digital libraries
16.55 – 17.15	18	Model analog
17.15 – 18.00	19	Summery + Certifications

*DMD, Masha Fraibert*

*Digital Solutions & Training Program Global Manager*