**OEMP Functions**After selecting a specimen, we are brought to the simulator.   
  
Most of your display is occupied by the simulated TEM control software, which is explained in the TEM Software Overview video.  
  
There is a Windows XP taskbar at the bottom of the page that allows users to switch between simulated versions of the programs used to control the TEM.   
  
Below the simulated taskbar is a row of buttons that allow you to access various other functions of the OEMP. Click a button once to open its window, and click it again to close the window. All windows can be positioned freely by clicking and dragging.

**2.1 Microscope Column**Clicking “Microscope Column” will open a window with a simulated display of the electron ray paths inside the TEM -- this is where you can familiarize yourself with the electron-optical components of the TEM.

You can click the labels next to components to see a more detailed view of the microscope structure and electron ray behavior in that area.

**2.2 Microscope Controls**To view virtual versions of the physical microscope controls, just click “Microscope Controls”.  
  
Three images of aperture positioning knobs, and two images of the microscope control panels will appear -- these are exact replicas of the real TEM hardware interfaces, and can be moved freely around the OEMP by clicking and dragging. In reality, all of these actions are performed by twisting the three knobs, but within the simulator we can just click and drag.

The largest knob (with the small indicator pin) on each assembly can be used to change the aperture size by clicking the small black numbers.

Once an aperture size has been selected, you can position it within the column by clicking the large knob.

Drag this knob up/down to move the aperture left/right. You can also drag the smaller, rightmost knob up/down to move the aperture up/down.

The two interfaces are called the “Left Hand Control Panel” and “Right Hand Control Panel”, or LHCP and RHCP, respectively, and they mediate most interactions between the operator and the microscope software.   
  
If we take a moment to look at the microscope column, though, we can see that the beam is being blocked within the gun tank. This is because the “column valves” are closed, which is indicated by the large red bar with white text that reads, “Status: COL. VALVES”.   
  
To see the Microscope Column window in action, click the “Col. Valves Closed” button to open the valve, and use your mouse to adjust the “Beam Shift” trackball on the LHCP. You’ll see the colorful electron ray paths change in response to your input, modeling the optical geometries of a real TEM.

Keep the “Microscope Column” window in the center of the two control panels as you explore the controls while reviewing the “TEM Hardware Overview” video, which will explain these functions (and more) in greater detail.

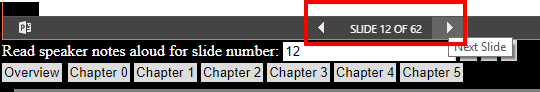
**2.3 Microscope Setup**

Clicking “Microscope Setup” will open a window within the simulated TEM user interface that mimics what we see on the fluorescence screen or video camera on the microscope. This is where you will see the images of your selected specimen, once you have gone through the proper procedure to begin imaging. All direct alignments should be performed using this window, unless otherwise stated.

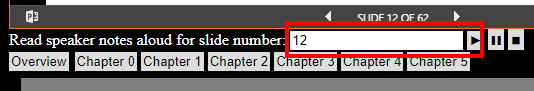
**2.4 Lectures**

The “Lecture” window is where you’ll find all of the course material. There are presentations on theoretical concepts, and videos covering practical laboratory activities.

The presentations are designed to quickly cover the crucial ideas. You can navigate between slides with the tabs shown below.



If you would like more information than what is provided by the bullets alone, you may listen to a detailed audio file for each slide by typing the slide number into the text entry field and pressing the play button, as shown in the figure below.



To see any animations, use the left mouse button to click on the slide.

**2.5 Q&A**

In the “Q&A” window you can browse or search through user-submitted questions and their answers.

If you cannot find what you are looking for, use the “Contact Us” to submit your questions to the instructor. You should receive a response within 24 hours via email.

**2.6 Examples and Applications**The “Examples and Applications” window is where you can find tools to expand your understanding of the processes that are occurring in the microscope.

**2.7 Homework**The “Homework” button will open a window containing questions that will test your theoretical understanding and practical intuition with real-world questions. Hitting “Submit answers” will grade the submission, save your score on the simulator for progress tracking, and immediately display which questions you answered correctly and which you should review.

**2.8 My Curriculum**

The “My Curriculum” window contains the syllabus for the current course, which in our case focuses on the TEM. You can review the course goals and access outlines of course content and progression here anytime.

**2.9 Notepad**

The “Notepad” window is just that -- a quickly accessible place to jot down notes without having to leave the simulator.