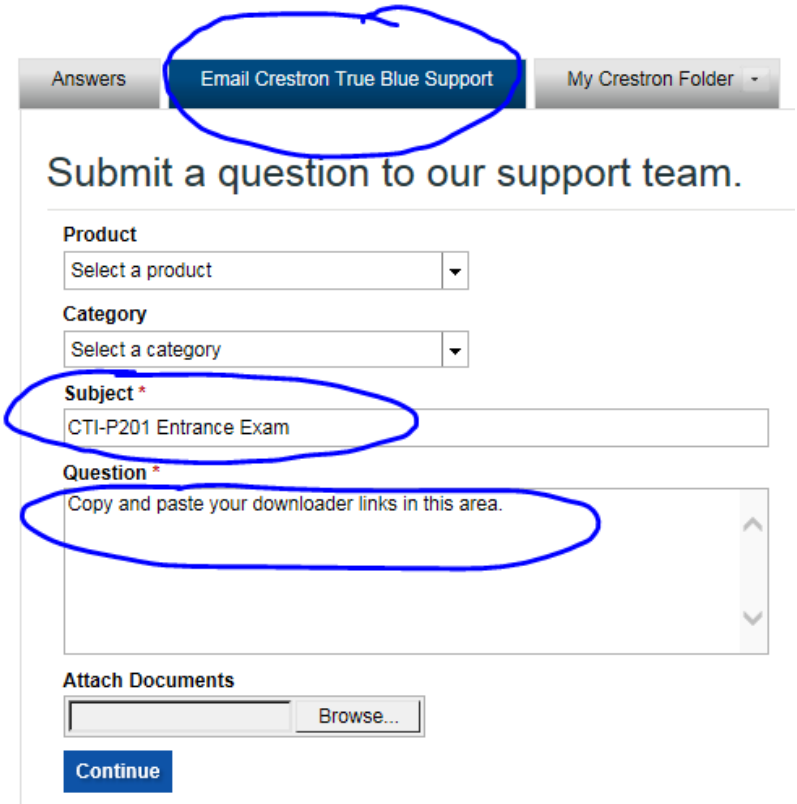
Thank you for attending the CTI-P101 Foundations of Crestron Programming class. We hope that you enjoyed the class. Your completion of CTI-P101 makes you eligible for the CTI-P201 programming class. CTI-P201 is next step in the process to become a Crestron Certified Programmer.

This entrance exam is designed for you to complete at your own pace. When you have completed all of the tasks required for the exam, please properly archive all of the programs and upload them using the following link:

Link: http://uploader.crestron.com/index.php
Username: uploader
Password: crst5498on

Once the file is uploaded, the uploader will generate a unique http link. **Please copy this link** and proceed to Crestron.com. Please log in, click on Crestron Online Help , and click on **Email Crestron True Blue Support.** Write **"CTI-P201 Entrance Exam"** in the subject box, paste your downloader links into the question box, and click "Submit".



This process creates a case in your **My Crestron Folder** tab**. All exam related questions and communications from that point forward** should be sent through the generated case.

## THIS IS A TEST

In this exam we will be your customer. Below is the scope of work to be completed. As with any customer, we will provide you with a punch list if the program does not perform correctly. You will not "get paid" (pass the exam) until the job is complete and working correctly.

The processor in the system will be an MC3.
The touchscreen is a DGE2 / V15.
The connection to the touchscreen will be via Ethernet.

## SCOPE OF WORK

1. The power button should toggle the state of its feedback when pressed. Depending on the state of the button pressed, it should initiate a startup or a shutdown sequence. The startup sequence should turn on the projector, lower the screen, adjust the lights and adjust the volume.

2. The Screen should be raised using a set of relays. The first relay must be pulsed for 2 seconds to lower the screen. The second relay must be pulsed for 2 seconds to raise the screen. The screen will be damaged if both relays are closed at the same time. The screen is connected to relays 1 and 2 on the DM-RMC-200-C.

3. Selecting a source button should provide feedback to the selected button and show the controls for that source. Example: Pressing the Blu-ray button should show the active state of the Blu-ray button and show the Blu-ray transport subpage. The selected source button feedback should stay on until another source is selected or until the system is turned off.

4. The indirect text field below the source select buttons should display a string that informs the user of the source that has been selected. Remember that the two cameras are considered separate sources.

5. The Blu-ray is controlled through IR. It's connected to IR port A on the MC3 (Please use the Sony BDP Series device driver); all feedback for the transport controls should be momentary. The Blu-ray output is HDMI to the DM Switcher.

6. The Satellite is controlled through IR. It's connected to IR port B on the MC3 (Please use the DirectTV HR24 device driver), all feedback for the transport controls should be momentary. The DirecTv output is HDMI to the DM Switcher.

7. The cameras are controlled through RS-232. Camera 1 is connected to com port A on the MC3. Camera 2 is connected to com port B on the MC3. Please use one Crestron Module for each camera (Please use the Sony EVI-D30 module). The cameras will share the same control buttons. The buttons should only control one camera at a time based on which camera is currently selected. Do not send commands out of both com ports at the same time. The camera outputs are SDI to the DM Switcher.

8. The projector is controlled through RS-232, Please use a Crestron module to control it (Please use the Canon REALiS WUX10 projector module). You will be controlling the power and the video input selection on the projector. The projector will be connected to the com port on the DM-RMC-200-C.

9. The source select buttons on the touchscreen should select a source to be displayed on the projector. The DM-RMC-200-C is connected to the HDMI input on the projector. All sources will use the HDMI input on the projector. You will need to pre-switch the HDMI input to the projector using a Crestron DM-MD8x8 card based switcher.

10. The volume should have up, down, and mute controls. A gauge should display the current volume level on the touch panel. The volume is controlled by the DM-RMC-200-C.

11. The "Mute" button should toggle the feedback, show the mute state of the button, and drive the volume gauge to 0. The mute should clear if the volume up or volume down button is pressed.

12. The lighting control gauge should show the lighting level being sent to zone 1 of your lighting dimmer. The preset buttons should ramp the lighting and the gauge smoothly to its' associated level. There should be a "Cut" function that forces the lights to the target level immediately if the button is pressed a second time. The dimmer is a Crestron CLX-1DIM8. All loads are incandescent.

13. The Power Button should have a shut-down sequence that will turn off the entire system, clear any button feedback and close any open subpages.

Remember to thoroughly test your program. It should compile without errors or warnings, and any unused signals should be handled properly.