

# Proctor instructions for practical exams Mechatronics Technician Part 1



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## Part 1: PRACTICAL EXAM Instructions: Flexible start 7:45am

Welcome to your Mechatronics Part 1 Practical examination. I am \_\_\_\_\_. I and the exam board will be observing and asking you questions during your testing today. I will have the exam board introduce themselves. *(Have exam board and staff introduce themselves)* If you have any questions, please do not hesitate to ask. If I or an exam board member can clarify anything, we are happy to do so.

Before you get started with your practical exam today, a few general announcements.

If you are experiencing any health issues that would make you unable to complete this examination today, please let us know at this time. Any grievances once the exam has begun, we will no longer be able to make any accommodations.

Now is the time to turn off or silence and bring up all cell phones to the front *(on a desk or in a drawer)*.

Should a phone ring during the exam, this will be cause for the proctor to end your exam. *(wait for all phones to be stored)*. You may get them back during breaks, please drop them back off before restarting after lunch.

There will be a 30min lunch break at approximately 11:30am – all will break at the same time, no apprentices should remain in the test area at this time. Please return at the time specified as your time will continue then.

In addition to your tools and equipment....ITEMS allowed during the practical exam include:

- Non-communicable, non-programmable, battery-operated calculator
- Blue Mechanical and Metal Trades Handbook and Orange electrical engineering book
- Pen, Pencil and Drawing tools
- Your yellow practical exam documentation

If you need any items such as a pen, pencil, your books...etc, please raise your hand.

As your phone should already be turned in, NO Phones or pictures are allowed. No documentation related to the exam should leave the room. If you need to go to the bathroom or take a break while in the middle of the exam you may but note that time does not stop. Only one person out at a time. If you need to go to the bathroom now, please do so before the next instructions. *(wait if anyone needs to use the restroom)*

Any questions so far before we get started into more detailed information about your exam?

Your practical exam will be 6.5 hours, each of you will have a countdown timer that will be at your workstation for all to be able to see. *(Pass out timers with 6.5 hours on them.)* This timer will be stopped after you complete your drafting and planning assignment while you are getting further instruction; it will be stopped for lunch and in the event an exam board member is not available when you are ready to commission. Otherwise, the timers should continue, even if you take a bathroom break. Whenever your timer is stopped, please note down the remaining time as an additional safety measure.

This 6.5 hours includes the planning/drafting assignment to be completed first before starting on the hands on work. There are 2 tasks on the sheet which are specifically related to the modification you will be making to your mechatronics system today. You will need your yellow preparation documentation for reference. Be sure to draw and write neatly. This takes approximately 30min to complete, if you take more time than that, you will run into the remaining 6 hours *(pass out planning/drafting assignment)*. Before you start write the current time on the top right corner. When you are done you will add your end time. Once you are finished raise your hand

and someone will collect your planning assignment and stop your timer while you wait for further instruction. **You may now START your TIMERS.**

## ~8:30am After Drafting continue with instructions about packet

You are expected to work independently on the exam. While it is ok to talk to others, please keep it to a minimum so as not to disrupt others and do not discuss the exam task unless asking to borrow a tool or something like that. As already mentioned, the exam board will ask questions of you throughout the exam as part of your technical discussion score for your practical exam.

I will now pass out your **practical task documentation packets** and review what should be inside.

*(Pass out test documentation in the plastic sleeves to apprentices and an additional note sheet)*

The documents should have a label with your name on it and your assigned test taker number. If you need to separate a document from a stapled packet, that is ok, just write your name on it and make sure that all documentation is returned and complete at the end of the exam. If you do not have any of the following documents in your packet, please let me know...as I go through each one.

*(stop for a moment between describing items outlined in 1-7 to make sure that everyone has the document that you are describing, they can look at all of it more thoroughly after you have finished your instructions)*

1. First in your packet – the Work assignment
  - a. An overview of the content of the packet and the expected steps to carry out – planning, execution and checking or commissioning.
2. Next, a blank sheet for planning. You need to make a plan, not just jump in. Review all of the documentation you receive, and before you do anything, use this planning document to outline the work that needs to be completed in a logical sequence. Planning, organization of our work process and neatness while working will be evaluated.
3. Third, an installation diagram and pneumatic diagram showing the final assembly on your mounting grid.
4. Fourth, the new drawings of the mechanical assembly with changes that need to be made. You will need to modify or add parts to the mechanical assembly to complete the function of the system.
  - a. Notice on the individual part drawings, some item numbers are circled, some are not. If they are circled that means that you should not have to change anything about them. They should already be complete per the yellow documentation.
  - b. If they are NOT circled then that part requires modification today as part of your exam.
  - c. “Circled” means the part is done....NOT circled means something needs to be changed.
5. Fifth, the electrical drawings or schematics. These drawings show what needs to be added to your current system today.
  - a. Notice that on the first sheet, there is something highlighted in gray – this means that it is something you will need to add today during the exam.
  - b. When wiring new items – If you have odd colored wire like pink or purple that is otherwise not used in your cabinet and is an acceptable gauge for the connection, please use this for any electrical modifications you make today. Does anyone have pink or purple wire? *(take note of who does and who does not. Using a “loud” wire is ideal for easily finding additions made during the exam)*
6. Sixth, the functional description and Grafcet of what the final function of your mechatronics subassembly should be able to do once all modifications are complete.

7. Lastly - Your commissioning protocol packet. Commissioning is the last thing that you do for your exam. When you are ready to commission an exam board member must be present. All modifications must be made to your equipment in a DE-energized state. If you think you are ready to turn on your system then you are ready to commission. I repeat - NOTHING should be plugged in or turned on until you have completed the electrical checks in your commissioning with an exam board member, demonstrating everything is safe to turn on and the exam board member has approved you plugging in your system.
- a. When you are completing your commissioning, you are presenting your system to the exam board. Be sure to go over each item on the list demonstrating all steps. The exam board is your client and you are showing to them that everything is good - all drawings are present, all is properly connected and safe before turning on and then finally demonstrating the function of the system.
  - b. Commissioning takes between 30min and 2 hours. I would recommend at least an hour at the end to commission as commissioning often involves troubleshooting when something does not work as planned. Yes, you can commission even if you did not get everything done. If you know you will run out of time, stop where you are and request to commission with an exam board member. Simply mark no if something is not done or is not correct as you go through the commissioning. If the exam board agrees with you in each section of commissioning, then you will get credit for properly self-assessing.
  - c. As you are going through your commissioning, be sure to check yes or no right in front of the exam board on your sheet. If during your commissioning there is a minor and easily fixable problem, fix it quickly in the moment before going on. If the problem requires more attention, but does not cause a safety hazard, mark no, write a description of the problem, and keep going. If there is time left at the end of commissioning, go back and fix the areas that were a “no” and show the exam board that they have been rectified before your exam time is complete.
  - d. If you reach a point in your commissioning that you cannot go further or you have not been able to demonstrate that your system is safe to turn on, then the exam board will not allow you to continue with commissioning until the problem is resolved.
  - e. If you are ready to commission and no exam board member is available to observe while you commission, your timer will be stopped and you will be asked to leave the room until an exam board member is available.

Any other questions?...

When your full remaining time is finished, you will need to collect all documentation and notes, and return it to me or another exam board member for me to check off that you have returned all documentation. No documentation should leave the room/s. Please do not start disassembling or packing things up to leave without checking with the exam board first. The exam board will let you know when you are good to go.

If your equipment will be reused tomorrow, then you will need to remove any added elements and return the equipment to the “yellow” starting status before you may leave. All tools and equipment should be neat and organized. Then check with the exam board before you go. If your equipment will not be reused, please pack it to go when you are cleared by the board.

Exam board, anything else to add before they get started?

Ok, **start your timers**, you may begin. *(approximate start 8:45am – approximate end 3:00pm)*