Engineering Training

Labwork Evaluation Handbook

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Evaluator's Role & Responsibilities

The primary role of the evaluator is to carefully examine the completed labwork and provide valuable feedback to the trainee. There are also other associated responsibilities, outlined here:

- Study the specification and evaluation sheet; become the application expert. Discuss any needed edits with the trainer before the labwork phase begins.
- Conduct a thorough software design review (see *Software Design Review* section) and communicate the project timeline.
- Be available, in addition to the trainer, for consult during the workday as the project progresses.
- Communicate with the trainer regarding your availability. The trainer will reschedule or source a substitute when needed.
- Set aside approximately 2 hours per labwork for thorough evaluation, feedback & information sharing.

In order to keep things even and consistent among the trainees during this phase:

- Provide guidance and support, not solutions. The trainee is required to work independently, use his/her resources, and take ownership of the project.
- Provide support during your office hours Mon-Fri only.
- Provide equal opportunities for support to all trainees.

Software Design Review

This session will take place at the end of Day 1 of the project cycle, and it serves as a discussion regarding how the labwork should be structured. The trainee should present you with a hand-drawn or digital document (format described in *Software Design Requirements*), and you will provide feedback and suggestions. After some edits, the final product should reflect a logical way to approach the project, and it should be clear how to structure things in the application software. The discussion is not over until your trainee has a good design on paper and a clear understanding.

The session is also an ideal time to suggest a timeline (see *Labwork Timeline* section), inquire about strategy (*Have you thought about how you will handle this error? How are you are going to incorporate this feature? Have you considered creating your own function blocks, libraries, and actions?),* and for your trainee to ask questions about the specification.

Software Design Requirements

- Overview of tasks and how they relate (bubble/block diagram)
- Each task individually, showing logic (flowchart format or similar)
- Data structures for axis (if applicable), main controls, IO, visualization
- Functions, function blocks, and libraries used

Depending on the application, other items may be required (master/slave diagram, cam states, etc.).

Labwork Timeline

Suggest this rough timeline to your trainee:

- Day 1: Read spec thoroughly and complete the software design. Remaining time can be used to set up hardware.
- Day 2: Complete hardware setup, establish communication to controller, and get the basics configured and/or moving. Begin programming of core functionality.
- Day 3: Develop visualization & error handling in tandem with core functionality.
- Day 4-7: Develop additional features like data logging, user management, etc., and perform more testing.

It is extremely helpful to check in with your trainee each day and make sure he/she is hitting these milestones according to the timeline. If you are not able, support the trainer in providing assistance as availability allows.

Evaluation Procedure

The evaluation is intended to be fair, transparent, and educational. It should take the following format:

1. Bring your laptop to the Training Lab so you can record scores as you go along.
2. Introduce yourself and collect the name of your trainee; add this to the evaluation sheet.
3. Ask your trainee about his/her labwork experience: *How did it go? What did you learn from this project? What was the biggest challenge? Were you able to stick to your timeline? What was not completed and why? Did the final product match your software design?*
4. Now you can begin digging into the application project; this does not necessarily need to be in the order depicted on the evaluation sheet. Carefully check the project against each item on the evaluation sheet and mention what you are currently evaluating. If the requirement is not 100% fulfilled, provide the reason why your trainee is not receiving full credit for that item.
5. As you go along, it is important to share your applications experience and discuss how you would have approached things differently, according to the company's best practices. Encourage your trainee to take notes and ask questions, and you should answer any of his/her questions thoroughly. Get confirmation of his/her understanding of the overall application.
6. Once the entire evaluation sheet is filled in, inform your trainee verbally of the final score. Offer to answer any remaining questions about areas where full credit was not received.
7. Email the completed evaluation sheet to the trainer, along with a brief performance summary (strengths, areas of improvement, any additional comments).

This process should be completed in one sitting, alongside your trainee, without distraction.