

EPFL, LAMS
« Industrial Automation » course

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ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Project Milestones

The following deadlines are set for the execution of the project:

1. **March 4, 2020:** all teams are formed and the group contracts are filled in and signed (email or upload on Moodle). The team will be the same for all tasks.
2. **April 28, 2020:** each team sends intermediate reports in PDF to both instructors. The results should be either a set of slides (self-explanatory) or a word document which shall address the tasks 1, 2, 3 and how the roles are split across the team.
3. **May 20, 2020:** each team sends the final report in PDF (maximum 10 pages text, pictures and references not included) and all source code to both instructors. The project report shall address all the tasks and clearly mention the contribution of each team member.
4. **May 26, 2020:** each team will hand in the evaluation form for two other teams, assessing their work.
5. **May 26, 2020:** each team will make a 15 minutes presentation of their work on the project.

To facilitate productive collaboration, it is important to reflect on your group's dynamics. You will rate yourself and your team members with the peer evaluation form two times during the semester (**April 14, May 26**). As a group, you can discuss the intermediate results and brainstorm concrete ways to improve your group processes.

Evaluation Criteria

The different tasks of the homework are graded with different weights.

1. Overall architecture (Weight 2)

- Is it easy to read and understandable?
- Explanation and justification of assumptions
- Are the most important elements of the system described?
- Mapping of functionality onto hardware and software components?
- Description of interaction between components (information flow)?
- Partitioning into levels (are the different parts on the right level of the pyramid?)?
- Constraints / Regulations?
- Source of information listed?

1.a Control system (Weight 2)

- What are the requirements? (What needs to be monitored, regulated and controlled? How does this translate into requirements?)
- Is it easy to read and understandable?
- Explanation and justification of assumptions
- Which parts are continuous, which parts discrete? Why?
- Selection of PLCs/IO parts (suitable? explained? How many?)
- Source of information listed

1.b Communication architecture (Weight 2)

- What are the requirements? (How much information, how frequent, how far? How many devices? What kind of latencies are acceptable? How does this translate into requirements?)
- Is it easy to read and understandable?
- Explanation and justification of assumptions
- Assignment of real-time / non-real time requirements
- Which parts are cyclic / event driven?
- Does protocol selection match requirements?
- Communication equipment (suitable? explained?)
- Synchronization
- Source of information listed

1.c SCADA (Weight 2)

- What are the requirements?
- Is it easy to read and understandable?
- Explanation and justification of assumptions
- Selection of HW (suitable? explained? How many?)
- Source of information listed

2. Supervision Tango part (Weight 2.5)

- List of signals to monitor and control complete and explained?
- List of alarms and priorities complete and justified?
- Architecture choices are described and justified
 - how many device servers are needed?
 - where do the device servers run?
 - what are the device servers connected to? through which protocol(s)?
- Are the HMI principles adhered to in the synoptic views?
- Does the device server work? I.e., can we run it?

3. Manufacturing Execution System (Weight 1)

- Are the purposes identified correctly?
- Is the proposed performance measure understandable and relevant?
- Are the dependencies and implications on the other layers identified and described?

4. FMEA / FTA (Weight 2.5)

- Is it easy to read and understandable?
- Explanation and justification of choice of method
- Explanation and justification of assumptions
- Source of information
- Completeness (are the most important elements of the analysis described?)

5. Presentation (Weight 2)

- Is it easy to follow?
- Do the slides support the presentation?

Peer Evaluation Form for Group Work

The first part of this evaluation is confidential and will never be shown to your team members. Please respond as honestly as possible.

Write the name of each of your group members (including yourself) in a separate column. For each person, indicate the extent to which you agree with the statement on the left, using a scale of 1-4 (1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree). Total the numbers in each column.

Evaluation Criteria	Name:	Name:	Name:	Name:
Attends group meetings regularly and is on time.				
Contributes meaningfully to group discussions.				
Completes group assignments on time.				
Prepares work in a quality manner.				
Demonstrates a cooperative and supportive attitude.				
Contributes significantly to success of project.				
I would like to work with this person again				
<i>TOTALS</i>				

Allocate a total of 100 points among your team member, including yourself, with higher percentages going to those members who contributed most. In the case of equal contribution, points should be divided equally among team members (25,25,25,25). Consider attendance and participation in team meetings, individual contributions to idea generation and research, communication within the group, etc.

Overall contribution	Name:	Name:	Name:	Name:
Percentage				

The following part of the feedback will be shared with your team (without your name attached to it). Please respond as honestly as possible.

Feedback on team dynamics:

1. How effectively did your group work?
2. Were the behaviors of any of your team members particularly valuable or detrimental to the team? Explain, providing concrete examples to illustrate your reasoning.
3. What did you learn about working in a group from this project that you will carry into your next group experience?

Sample Team Contract

Team Name: _____

Date: _____

GOALS: What are our team goals for this project?
What do we want to accomplish? What skills do we want to develop or refine?

EXPECTATIONS: What do we expect of one another in regard to attendance at meetings, participation, frequency of communication, the quality of work, etc.?

POLICIES & PROCEDURES: What rules can we agree on to help us meet our goals and expectations?

CONSEQUENCES: How will we address non-performance in regard to these goals, expectations, policies and procedures?

We share these goals and expectations, and agree to these policies, procedures, and consequences.

Signatures

Sources:

Senior Project Design Rubric

Department of Civil Engineering, University of Pittsburgh.

Eberly Center for Teaching Excellence, Carnegie Mellon University

Peer evaluation form developed at Johns Hopkins University (October, 2006)