ELE2038 – Control Group Coursework Assignment – Marking rubric

Mark band	VERY POOR 0 – 39%	POOR 40 – 49%	GOOD 50 – 59%	VERY GOOD 60 – 69%	EXCELLENT 70 – 79%	OUTSTANDING 80 – 100%
(C1) Quality of presentation of the report. Quality of technical report (see "how to write a half-decent technical report"); clarity technical language, appropriate level of technical details, quality of typesetting and figures. **Marks:** 15%	Poorly written report, plots with illegible text and/or no axis labels and/or LLM-like (pompous and vague) text.	Poorly written and/or poorly structured report (e.g., lengthy derivation and no discussion, poor quality graphics). Some of several guidelines of "how to write a half-decent technical report" are only not followed.	*Almost all* guidelines of "how to write a half-decent technical report" are followed, well-structured report, easy to follow. Appropriate typesetting of equations. Accessible code on GitHub.	Solid report that follows all guidelines outlines in "how to write a half-decent technical report." Appropriate discussion of all results and clearly stated conclusions. Clearly presented solution.	All of "very good" + high quality graphics and the quality of presentation is comparable to a professional report on controller design. No mathematical symbols or variables are undefined.	Report of outstanding quality with exceptionally high-quality graphics (vector format is highly preferred). This is a professional report in all regards, it is easy to read, all statements are clear, scientifically accurate, and well justified, and, overall, it has a strong tutorial value. The external code repository is professionally documented, modular, and easily reproducible.
(C2) Modelling. Correctness of dynamical model with meaningful and clearly stated assumptions. Your Python code needs to be made available to get ≥40 in this criterion. **Marks:** 25%	Poor modelling approach, no model derived, or fundamental errors in physics/units. Missing link to source code or broken link.	Incorrect model or superficial modelling approach. There may be significant errors in the derivation of the nonlinear dynamical model, or significant issues in the linearisation.	Correct modelling approach and correct linearisation. The report includes a standard derivation of the system equations based on the physics described (spring-damper and electromagnet). Correct Python implementation.	Correct and justified modelling approach with unambiguous articulation of all assumptions. Correct and well organised Python implementation.	All criteria for "very good" and detailed, convincing justification of all assumptions, analysis of modelling accuracy, identification of possible disturbances, and a high-quality implementation in Python.	Outstanding modelling approach, incl. linearisation, and discussion of the accuracy of the model, incl. evidence and theoretical discussion. Extensive and realistic modelling of possible disturbances. A modular and fully documented Python implementation that can be proudly released to pypi and can be useful to other engineers.
(C3) Control design. Quality of controller design, justification of design choices, demonstration of the closed-loop system behaviour via simulations, theoretical guarantees. Your Python code needs to be made available to get ≥40 in this criterion. **Marks:** 45%	No controller design provided, or the design fails to address stability and set-point requirements. Missing link to source code or broken link.	Meaningful approach to controller design, but with some shortcomings, e.g., the controller fails to meet some of the specifications of the assignment, but, overall, there is evidence of an appropriate controller design approach.	Correct approach to controller design with some limited testing. Basic stability analysis.	Correct approach to controller design and appropriate testing in realistic scenarios. Some discussion of theoretical properties incl. stability.	Excellent and well-justified controller design approach in several realistic scenarios and study of controller robustness. Appropriate theoretical discussion. Excellent quality of implementation in Python.	An outstanding controller design methodology, exhaustively tested (against an accurate model of the system) in several different realistic scenarios, insightful observations and a fully justified approach, thorough theoretical analysis. Additional analyses (e.g., sensitivity to mis-estimated parameters). A modular and fully documented Python implementation that can be proudly released to pypi and can be useful to other engineers.

(C4) Professionalism: Project management and collaboration. Quality of project management approach, evidence of collaboration, evidence of use of best practices (git, issue tracker, Gantt chart, meeting minutes, etc). Marks will be awarded based on the *evidence* you will provide in your collaboration report and, if relevant, your git history, use of an issue tracker, or other relevant technologies. **Marks:** 15%	Very poor quality of collaboration, or no evidence of collaboration (0) and/or very limited evidence of a project mgmt. approach and/or missing table in your collaboration report.	Fragmented evidence of collaboration. Very limited or no use of professional tools like git (e.g., very few commits, commits by one user only, no evidence of active collaboration) or issue trackers.	Solid project mgmt. approach with some use of appropriate technologies, approaches, and methods. Evidence of active collaboration.	Strong evidence of a structured project management approach. Clear evidence of active collaboration through git and organised task distribution.	All criteria for "Very Good" plus high-quality use of best practices. This includes a well-documented git history, proactive use of an issue tracker to manage challenges, and a clear, professional synthesis of individual contributions.	Outstanding project management approach with advanced use of git (e.g., pull requests, branches, code reviews), active use of an issue tracker, evidence of strong interactions among team members through git, evidence of other project mgmt. tools and methods.