

Mock GC Oven Project – Objective, Deliverables, and Roles – 250 points

Objective – The objective of this project is to develop an interface in LabView to control a mock GC oven that is capable of temperature programming.

Deliverables (due dates will be negotiated)

- 1) **(50 pts)** Develop an interface that enables isothermal control of the oven at any temperature in the range of 28 to 38 °C. Compare performance when using all four lamps at once, or with individual control. Performance should be measured with a setpoint of 32 °C, and the following metrics: A) short-term noise in the temperature profile; and B) temperature drift over a period of 10 minutes.
- 2) **(50 pts)** Develop an interface that enables precise and repeatable temperature programming of the oven. Develop the following program:

Time (min)	T (°C)
0	28
1	28
11	38
12	38

Performance should be measured using the following metrics: A) precision as measured by difference between setpoint and measured temperature over the course of the temperature program; B) repeatability as measured by the precision of measured temperature at each time point for multiple experimental temperature programs.

- 3) **(50 pts)** Short (< 2 pages) written summary of the approach to the problem, and performance characterization. This will include a revision cycle with instructor feedback between drafts. A rubric will follow.
- 4) **(100 pts)** Project presentation – Final presentation (15-30 min) should explain the hardware setup, strategy for developing the SW interfaces, and performance characterization. Where possible, the presentation should make explicit connections to content discussed in this or other courses (e.g., concepts in feedback control). A rubric will follow.

Roles

Hannah and Kaitlyn – Lead engineers; effort should be distributed equitably.

Devin - Consultant