

Elements of Programming Languages (EPL) is a new course for AY 2015/2016 that was introduced to fill a gap in the coverage of programming language content (relative to e.g. the ACM2013 curriculum.) It is currently rated at 10 points, level 10 and normal year taken UG3. In its first year of being taught, EPL attracted 75 students (including over 10 visiting undergraduate or master's students).

EPL had three practical exercises (the exact content will vary in future iterations):

- Lab: A tutorial overview of Scala (the language used for the other assignments) with some simple programming exercises (comparable to Inf1-FP); formative only
- Coursework 1: implementing the interesting parts of an interpreter for a limited language (substitution, evaluation, typechecking) and writing some programs in this language; 10% of final grade (Average score 14/20 or 70%)
- Coursework 2: implementing a tool to map a "markdown" DSL to various output formats (e.g. LaTeX and HTML), and a randomized test data generator; 15% of final grade. (Average score 24/32 or 75%)

I recognized during the course that CW1 and CW2 were both probably a little too long; students had 3 weeks for CW1 and 4 for CW2, and reported spending more than 10 hours on CW1. I made some concessions to make CW1 easier once difficulties were reported. We also made sample solutions (compiled to bytecode) available so that students could see what correct behavior looked like and could do parts of the assignment in any order. Nevertheless, the results suggest that only a few students had serious difficulties completing the assignments satisfactorily.

The course was designed intentionally to provide multiple practical engagement points, as learning by doing (i.e. programming) is an important component of the course, covered by two distinct learning outcomes in the course descriptor. Therefore, time spent on doing the courseworks is not just blind assessment, but instead it includes (and to some extent focuses) time learning/reinforcing the lectures/tutorial material.

Combining these two outcomes into one "monster" assignment, necessarily due at the end of the semester, would degrade this design, as well as decrease the extent to which we are able to help students recover if they encounter difficulties early on (as happened in several cases in 2015/6). Therefore, my preference would actually be to have 3 "bite-size" assignments (later building on earlier), each corresponding to roughly 20-40% of the size of the two current courseworks, due in weeks 3, 6 and 9 respectively. This would decrease the amount of work overall in line with the workload model.

If this alternative is not agreeable, an alternative proposal would be keep the current course descriptor (and number of assignments) and decrease the work involved in the two graded courseworks to 40-50% of the size of the assignments in 2015/6. This could be easily accommodated without decreasing learning opportunities by retaining some exercises that can optionally be done for feedback but are not required; this would also mean that we do not need to completely rework the courseworks each year but can reuse parts of them (and amortize the associated development/TA effort).