

Attracting Underrepresented Groups to Electronics and Integrated Circuits Design

Oscar Gustafsson, Division of Electronics and Computer Engineering,
Department of Electrical Engineering, Linköping University

This report covers both the original application 2024 and the continuation 2025.

The purpose of the project was to enable students from underrepresented groups, in this case female and non-binary students, to get exposed to integrated circuits design during their undergraduate studies. The hope is to attract more students from these groups in the higher year specializations. However, as there is a limited time-span compared to when the students select specialization, it is yet not possible to see any possible effects of the projects.

As the events did not fill up according to the budget, we have had three events (instead of the planned two, one per application). The events were announced in different ways. For the first event, we primarily used the student intranet and the program rooms on the recommendation from central administration. However, on the last day of signing up, the attendance number was extremely low, so we sent emails to relevant courses, significantly boosting the attendance. This method was used for the later events, often combined with teachers giving a bit of information on a lecture for cases that teachers from our division had courses for the considered group of students. There is a web page, <https://byggettchip.gitlab-pages.liu.se/>, which contains information about the planning of the events etc. This is the main source of information for the students, in addition to emails and information from lecturers discussed above.

The events and number of students are summarized in the Table below:

Date for main event (plus planning the evening before)	Total number of students ¹	Of which female and non-binary	Number of designs submitted
2025-04-05	36	3	No ²
2025-11-08	34	12	11
2026-03-14	28	4	4 ³

As seen, we did not have as many students as we aimed for. However, it is probably better to have two smaller events per year than one big from a pure logistics perspective. On one hand, we would have hoped for more female and non-binary students to attend, on the other hand, we are happy about the ones that did attend. It can also be noted that for the November event, I had just finished lecturing basic switching theory, so a majority of the female/non-binary students were from that course. Hence, one may consider if I should go out and talk about this in classes to potentially recruit more students.

1 Total number signed up. A few students canceled before the event and a few did not show up.

2 Just before the event, the chip provider went out of business so at that time it was not possible to actually send chips for fabrication.

3 The planned chip fabrication run was filled between announcing the event and the actual event, so we went for a later run which has still not closed. Hence, students still have time to submit their designs.

No chips have been returned from manufacturing so far, and, hence, the final stage of measuring has not been done for any design. This means that there are still activities remaining. This is also where we will evaluate the students interest in the topic and if it has changed because of this.

However, based on conversation with the students during the events, they appreciated the opportunity to try it out. I can also say that the students were quite mixed in expectations etc. Some were really into the topic already, while others saw it more like an opportunity to try. Although we learned many things from an organization perspective along the way, all-in-all we believe that this was a good opportunity for the students and are grateful for the funding to make it happen. Hopefully, it leads to some of the students being more interested in the area and we see a more diverse group of students in the upcoming years, as well as a more diverse group of people working in the industry over time. It is, without doubt, something that we want to continue to offer and we will submit a new application for a continuation, now also including Lund and Halmstad.

An article was published at LiUs web page in Swedish with some photos and a video: <https://liu.se/nyhet/studenter-byggde-egna-chip> This was also translated into English and published at the ELLIIT web page: <https://elliit.se/students-built-their-own-chips-at-liu/> We also had a visit from the LiU social media team, but nothing ended up there for unknown reasons.

Below is an additional photo (unfortunately, I did not get the expectation to take photos myself):

