For this course round the content and the learning outcomes of the course were drastically reduced by half. This created a situation where there were essentially two different courses with the same course number. Moreover, any student, with or without adequate prerequisites were allowed to register for the course for unclear reasons. And the course was affected by the Covid-19 restrictions. This lead to several changes with short notice.

Lectures and labs were re-designed and a new compendium attempting to bridge some of the shortcomings of student knowledge also covering complementing view of the course material was introduced. Previous course rounds had had Canvas quizzes on the concepts of the course to make students study the course content and specifically the theory during the course. These were removed. Following discussions with the responsible director of studies two ways to be graded on the course were instantiated to cater both for old and new students. For new students, examination were performed by labs and a more extensive presentation/discussion with the students. Older students were offered to be examined by either the new lab course or in the case they lacked the written exam they were offered the possibility to do written exams in Canvas.

Lecturing, lab presentations and guidance sessions via Zoom worked for most parts well.

Written exams via Canvas also worked well for most parts. Specifically it was easier for the examiner to be available for questions via Zoom.

However, there are potential problems.
Many students have limited programming skills when they enter the course. This was particularly apparent as students had been allowed to sign up for the course even without having passed prerequisite courses or even a single course. This was also a factor for the decision to examine the course by practical assignments.
Another problem is that it appears that many students tend not to study the written course material. In anonymous polls in Zoom during lectures only 40-60% of the students answered that they studied the written material. This is somewhat surprising as all written material, including a shortened but adequate version of the text book, has been freely available for the students. This is in line with experiences from previous course rounds and by previous examiners in the course. Previous course rounds had concept quizzes in Canvas and guidance sessions three times per week. The intention being to identify and help students who had problems with the theoretical parts of the course. This did not work as intended as very few, one or two students at most attended any of the guidance sessions. Instead we were told that students shared the correct answers via social media. This hypothesis was tested in the written exams in Canvas. For the first Canvas exam quiz questions from the previous course rounds were used with exceptionally good student results. Again students admitted to learning the quiz answers by heart rather than to try to gain a deeper understanding.
The plagiarism control application, Urkund, also created grave practical problems. Typically a students would upload a large number of small files for the labs (~30-100 per student). Each upload generated an E-mail to the examiner essentially blocking E-mail usage.

For future course rounds we intend to continue building on the new compendium covering more aspect of the basics of programming and how to solve problems by programming. While this is not part of the course content/learning outcomes we deem it necessary to include this for the many students with less or no previous experience of programming.