



LUND UNIVERSITY
Faculty of Science

Centre for Mathematical Sciences
Division of Mathematics and Numerical
Analysis

Course Analysis for NUMN21 Advanced Course in Numerical Algorithms with Python/SciPy Autumn 2025

Course Information

Lecturer: Robert Klöfkorn, Andreas Langer

Teaching assistants:

Number of students:

24 newly registered and 0 re-registered.

14 students answered the course evaluation.

Examination

Project: 19 students passed.

Final grades:

In all, 19 students, including 0 re-registered students, have got their final grade: G (Passed).

Course Evaluation

Summary of student's answers:

For this course with double course code the survey was carried out by LTH (course code FNMM05) and sent out to all students of the course. 14 students answered the survey.

Teachers' comments:

The teaching team was satisfied with how the course went. The attached survey shows that some students were not satisfied with the course. A general problem is the large number of students being admitted to the course making the project presentations tedious. Upon checking the comments from the dissatisfied students it shows that they also have been rather satisfied with the course projects. In this instance of the course peer review of group projects was introduced to improve the student engagement during the discussions. However, a canvas problem completely dismantled this and led to dissatisfaction for both, the students and teachers. Other comments from dissatisfied students are about too much mathematical content which in an numerical analysis course is normal and cannot be avoided. Such comments have been discarded as unreasonable. Since the course content did not change from the previous instance it remains unclear why the evaluation results differ compared to the previous one.

Suggestions for the next course realisation:

The number of student slots for the LTH course code FMNN05 has been reduced, to both accommodate for the increasing number of students from NF side as well as to reduce the number of students with potentially insufficient numerical analysis background being admitted to this course.

Course evaluation report - CEQ, FMNN25

Basic facts

| | | |
|--------------------------------------|--|--|
| Course name | Advanced Course in Numerical Algorithms with Python/SciPy | |
| Course code | FMNN25 | Study hours according the curricula |
| ECTS credits | 7.5 hp | Lectures 28 h |
| Year | 202526 | Group work 0 h |
| Study period the course was finished | HT_LP1 | Laboratories 0 h |
| Programme | all | Time with supervisor 3 h |
| Registrated students | 49 | Self study time 169 h |
| Number answers and response rate | 14 / 29 % | |
| Number answers from males | 7 | |
| Number answers from females | 5 | |

Since less than 20 students have answered the questionnaire no statistical significance tests have been made.

Summary of questionnaires

The CEQ-score span between -100 och +100, there -100 means that "I fully disagree to the statement" and +100 "I fully agree to the statement".

Presence at teaching

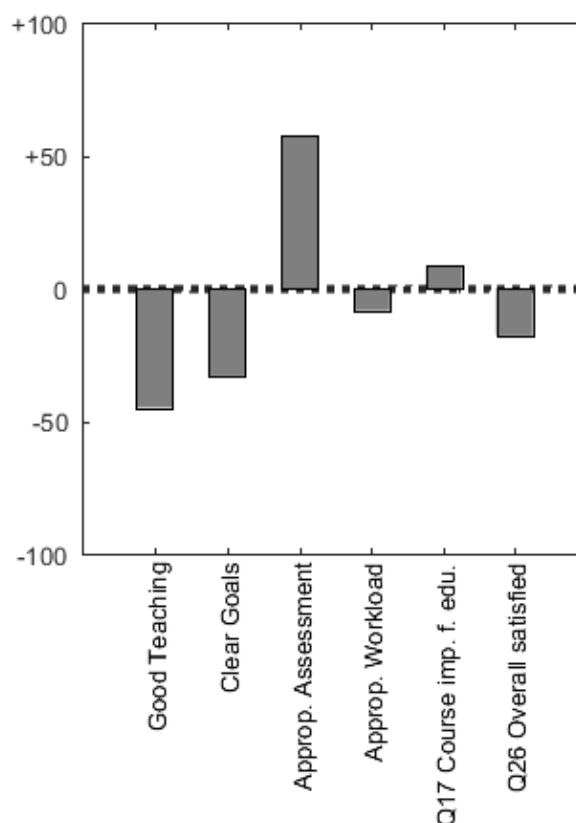
| Part of teaching | Number | Share |
|------------------|--------|-------|
| 0 % | 0 | 0 % |
| 20 % | 1 | 7 % |
| 40 % | 1 | 7 % |
| 60 % | 3 | 21 % |
| 80 % | 2 | 14 % |
| 100 % | 7 | 50 % |

CEQ-scales & special questions

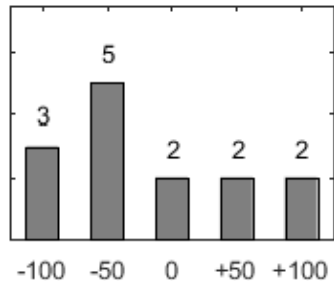
| Scale | CEQ-score | StdDev |
|---------------------------|-----------|--------|
| Good Teaching | -45 | 58 |
| Clear Goals and Standards | -33 | 50 |
| Appropriate Assessment | +58 | 35 |
| Appropriate Workload | -8 | 45 |
| Generic Skills | +1 | 51 |

Special questions

| | | |
|--|-----|----|
| The course seems important for my edu. | +8 | 60 |
| Overall, I am satisfied with this course | -18 | 70 |



Distribution of the answers from question 26: "Overall, I am satisfied with this course"



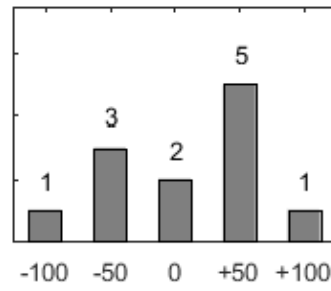
CEQ-score mark Number Share

| | | |
|-------------------|---|------|
| Dissatisfied (<0) | 8 | 57 % |
| Neutral (0) | 2 | 14 % |
| Satisfied (>0) | 4 | 29 % |
| No answer | 0 | 0 % |

| | |
|-----------------------------|-----|
| Mean of CEQ-score | -18 |
| Standard deviation (StdDev) | 70 |

| | |
|---------|-----|
| Males | -36 |
| Females | -30 |

Distribution of the answers from question 17: "The course seems important for my education"



CEQ-score mark Number Share

| | | |
|------|---|------|
| -100 | 1 | 7 % |
| -50 | 3 | 21 % |
| +0 | 2 | 14 % |
| +50 | 5 | 36 % |
| +100 | 1 | 7 % |

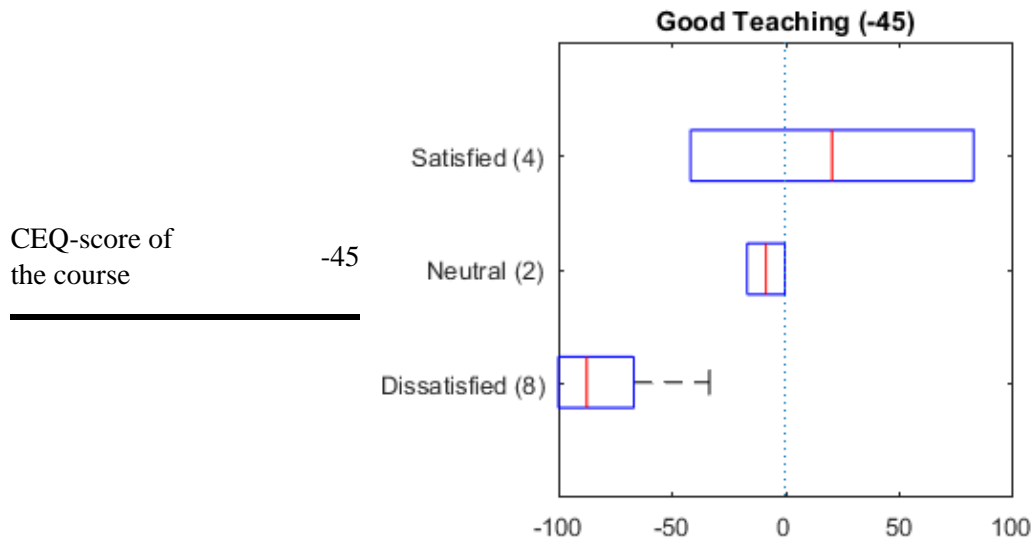
| | |
|-----------------------------|----|
| Mean of CEQ-score | +8 |
| Standard deviation (StdDev) | 60 |

| | |
|---------|-----|
| Males | +0 |
| Females | -13 |

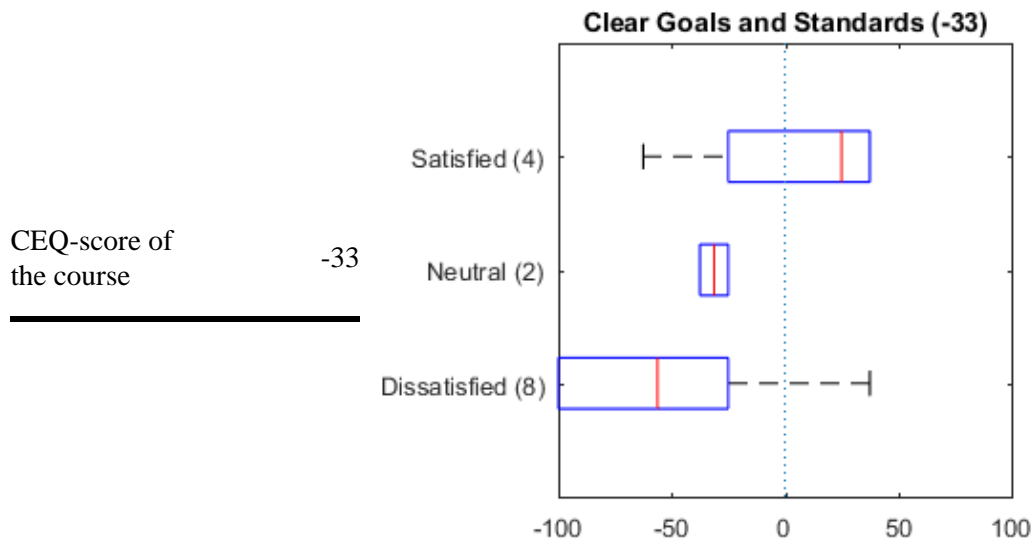
Summary scales divided on satisfaction

Statistical examination has not been done due to at least two groups consist of less than five students

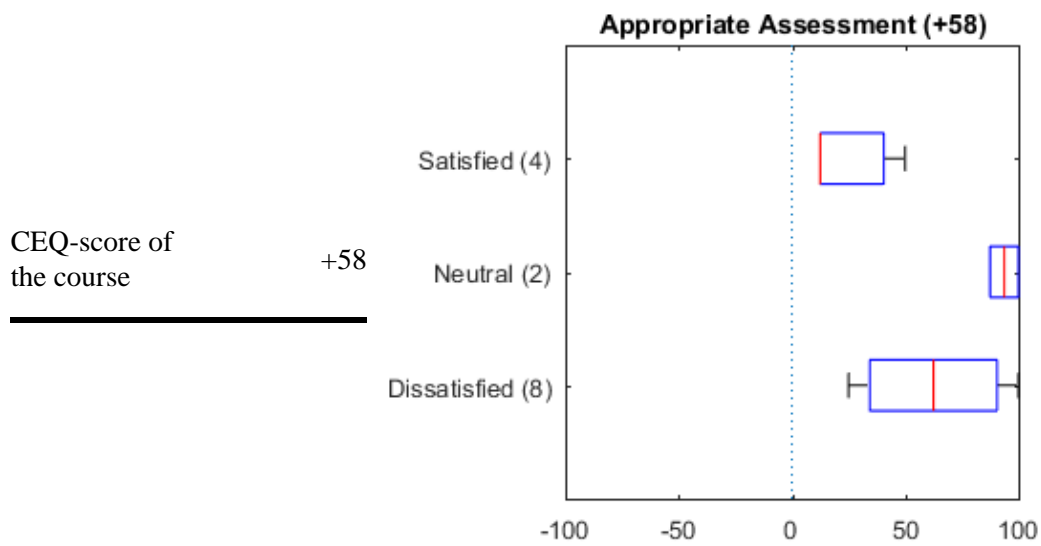
Good Teaching



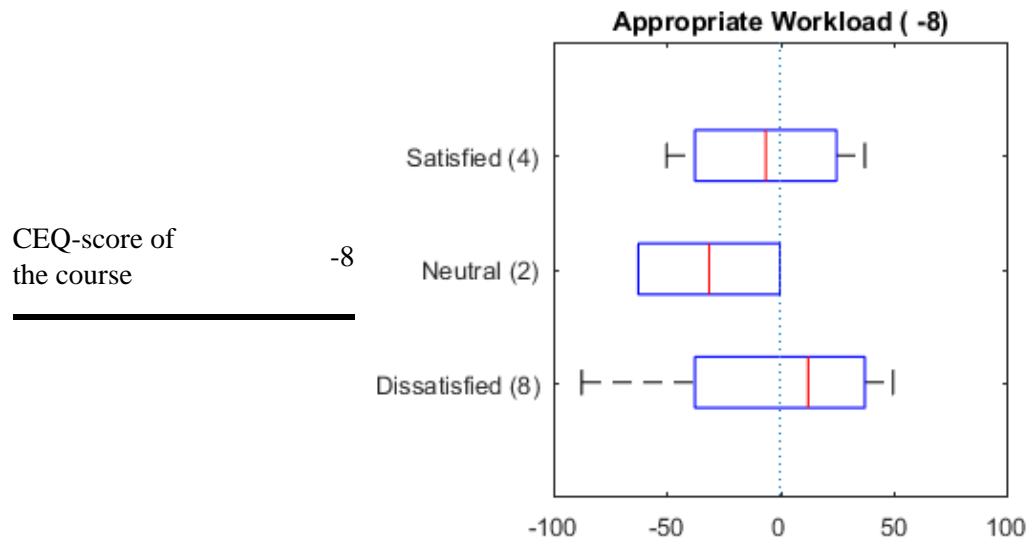
Clear Goals and Standards



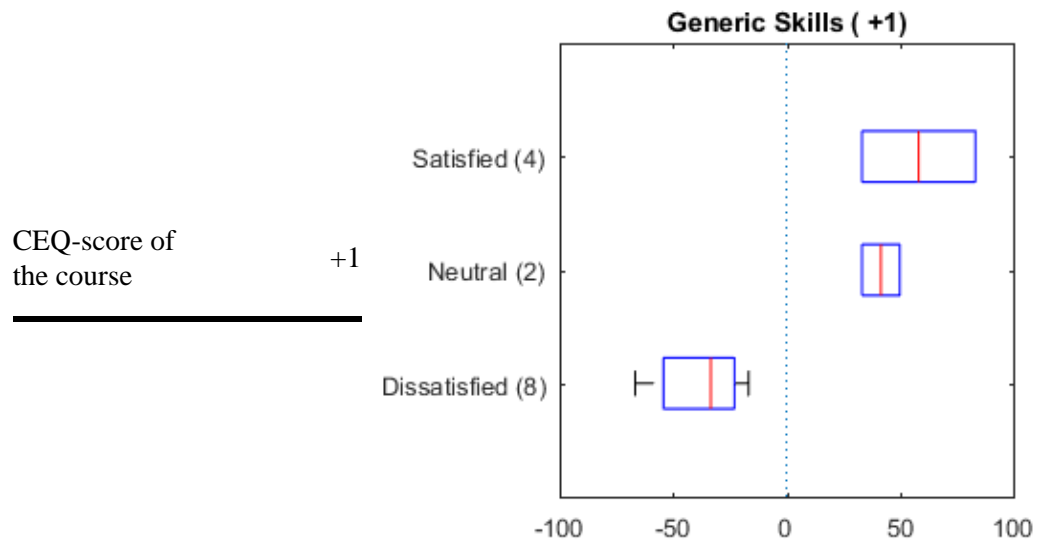
Appropriate Assessment



Appropriate Workload



Generic Skills



Answers to each question

The questions in bold are reverse positive.

Statistical examination between dissatisfied and satisfied has not been done due to at least one of the groups consist of less than five students

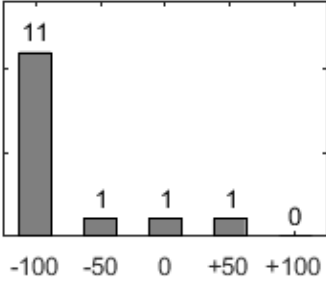
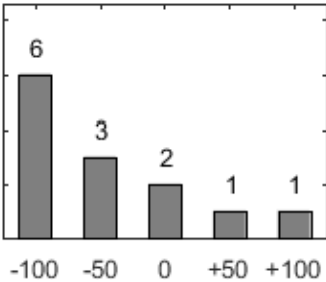
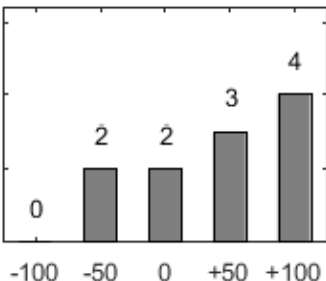
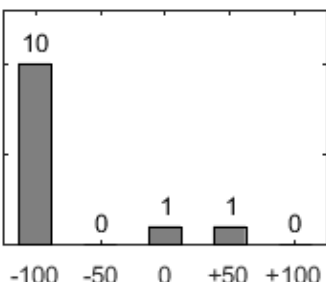
Good Teaching (-45)

| Question | CEQ-score | Histogram | | | | | | | | | | | | |
|--|-----------|--|-----------|-----------|-------------|---|----------|---|---------|---|-----------|---|------------|---|
| 3. The teaching has motivated me to do my best | -42 | <table border="1"> <caption>Data for Histogram 3</caption> <thead> <tr> <th>Score Bin</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -50</td> <td>5</td> </tr> <tr> <td>-50 to 0</td> <td>4</td> </tr> <tr> <td>0 to 50</td> <td>2</td> </tr> <tr> <td>50 to 100</td> <td>1</td> </tr> <tr> <td>100 to 150</td> <td>1</td> </tr> </tbody> </table> | Score Bin | Frequency | -100 to -50 | 5 | -50 to 0 | 4 | 0 to 50 | 2 | 50 to 100 | 1 | 100 to 150 | 1 |
| Score Bin | Frequency | | | | | | | | | | | | | |
| -100 to -50 | 5 | | | | | | | | | | | | | |
| -50 to 0 | 4 | | | | | | | | | | | | | |
| 0 to 50 | 2 | | | | | | | | | | | | | |
| 50 to 100 | 1 | | | | | | | | | | | | | |
| 100 to 150 | 1 | | | | | | | | | | | | | |
| 7. During the course I have received many valuable comments on my achievements | -39 | <table border="1"> <caption>Data for Histogram 7</caption> <thead> <tr> <th>Score Bin</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -50</td> <td>4</td> </tr> <tr> <td>-50 to 0</td> <td>6</td> </tr> <tr> <td>0 to 50</td> <td>2</td> </tr> <tr> <td>50 to 100</td> <td>1</td> </tr> <tr> <td>100 to 150</td> <td>1</td> </tr> </tbody> </table> | Score Bin | Frequency | -100 to -50 | 4 | -50 to 0 | 6 | 0 to 50 | 2 | 50 to 100 | 1 | 100 to 150 | 1 |
| Score Bin | Frequency | | | | | | | | | | | | | |
| -100 to -50 | 4 | | | | | | | | | | | | | |
| -50 to 0 | 6 | | | | | | | | | | | | | |
| 0 to 50 | 2 | | | | | | | | | | | | | |
| 50 to 100 | 1 | | | | | | | | | | | | | |
| 100 to 150 | 1 | | | | | | | | | | | | | |
| 15. The teachers made a real effort to understand the problems and difficulties one might be having in this course | -46 | <table border="1"> <caption>Data for Histogram 15</caption> <thead> <tr> <th>Score Bin</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -50</td> <td>5</td> </tr> <tr> <td>-50 to 0</td> <td>4</td> </tr> <tr> <td>0 to 50</td> <td>3</td> </tr> <tr> <td>50 to 100</td> <td>0</td> </tr> <tr> <td>100 to 150</td> <td>1</td> </tr> </tbody> </table> | Score Bin | Frequency | -100 to -50 | 5 | -50 to 0 | 4 | 0 to 50 | 3 | 50 to 100 | 0 | 100 to 150 | 1 |
| Score Bin | Frequency | | | | | | | | | | | | | |
| -100 to -50 | 5 | | | | | | | | | | | | | |
| -50 to 0 | 4 | | | | | | | | | | | | | |
| 0 to 50 | 3 | | | | | | | | | | | | | |
| 50 to 100 | 0 | | | | | | | | | | | | | |
| 100 to 150 | 1 | | | | | | | | | | | | | |
| 18. The teaching staff normally gave me helpful feedback on the progress of my work | -50 | <table border="1"> <caption>Data for Histogram 18</caption> <thead> <tr> <th>Score Bin</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -50</td> <td>5</td> </tr> <tr> <td>-50 to 0</td> <td>4</td> </tr> <tr> <td>0 to 50</td> <td>2</td> </tr> <tr> <td>50 to 100</td> <td>0</td> </tr> <tr> <td>100 to 150</td> <td>1</td> </tr> </tbody> </table> | Score Bin | Frequency | -100 to -50 | 5 | -50 to 0 | 4 | 0 to 50 | 2 | 50 to 100 | 0 | 100 to 150 | 1 |
| Score Bin | Frequency | | | | | | | | | | | | | |
| -100 to -50 | 5 | | | | | | | | | | | | | |
| -50 to 0 | 4 | | | | | | | | | | | | | |
| 0 to 50 | 2 | | | | | | | | | | | | | |
| 50 to 100 | 0 | | | | | | | | | | | | | |
| 100 to 150 | 1 | | | | | | | | | | | | | |
| 19. My lecturers were extremely good at explaining things | -42 | <table border="1"> <caption>Data for Histogram 19</caption> <thead> <tr> <th>Score Bin</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -50</td> <td>5</td> </tr> <tr> <td>-50 to 0</td> <td>4</td> </tr> <tr> <td>0 to 50</td> <td>2</td> </tr> <tr> <td>50 to 100</td> <td>1</td> </tr> <tr> <td>100 to 150</td> <td>1</td> </tr> </tbody> </table> | Score Bin | Frequency | -100 to -50 | 5 | -50 to 0 | 4 | 0 to 50 | 2 | 50 to 100 | 1 | 100 to 150 | 1 |
| Score Bin | Frequency | | | | | | | | | | | | | |
| -100 to -50 | 5 | | | | | | | | | | | | | |
| -50 to 0 | 4 | | | | | | | | | | | | | |
| 0 to 50 | 2 | | | | | | | | | | | | | |
| 50 to 100 | 1 | | | | | | | | | | | | | |
| 100 to 150 | 1 | | | | | | | | | | | | | |
| 21. The teachers on the course worked hard to make the subject interesting | -36 | <table border="1"> <caption>Data for Histogram 21</caption> <thead> <tr> <th>Score Bin</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -50</td> <td>4</td> </tr> <tr> <td>-50 to 0</td> <td>3</td> </tr> <tr> <td>0 to 50</td> <td>2</td> </tr> <tr> <td>50 to 100</td> <td>1</td> </tr> <tr> <td>100 to 150</td> <td>1</td> </tr> </tbody> </table> | Score Bin | Frequency | -100 to -50 | 4 | -50 to 0 | 3 | 0 to 50 | 2 | 50 to 100 | 1 | 100 to 150 | 1 |
| Score Bin | Frequency | | | | | | | | | | | | | |
| -100 to -50 | 4 | | | | | | | | | | | | | |
| -50 to 0 | 3 | | | | | | | | | | | | | |
| 0 to 50 | 2 | | | | | | | | | | | | | |
| 50 to 100 | 1 | | | | | | | | | | | | | |
| 100 to 150 | 1 | | | | | | | | | | | | | |

Clear Goals and Standards (-33)

| Question | CEQ-score | Histogram | | | | | | | | | | | | |
|---|------------|--|----------|-------|------|---|-----|---|---|---|-----|---|------|---|
| 1. It was easy to know the standard of work expected | -21 | <table border="1"> <caption>Histogram Data for Question 1</caption> <thead> <tr> <th>Category</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>3</td> </tr> <tr> <td>-50</td> <td>4</td> </tr> <tr> <td>0</td> <td>4</td> </tr> <tr> <td>+50</td> <td>2</td> </tr> <tr> <td>+100</td> <td>1</td> </tr> </tbody> </table> | Category | Count | -100 | 3 | -50 | 4 | 0 | 4 | +50 | 2 | +100 | 1 |
| Category | Count | | | | | | | | | | | | | |
| -100 | 3 | | | | | | | | | | | | | |
| -50 | 4 | | | | | | | | | | | | | |
| 0 | 4 | | | | | | | | | | | | | |
| +50 | 2 | | | | | | | | | | | | | |
| +100 | 1 | | | | | | | | | | | | | |
| 6. I usually had a clear idea of where I was going and what was expected of me in this course | -36 | <table border="1"> <caption>Histogram Data for Question 6</caption> <thead> <tr> <th>Category</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>4</td> </tr> <tr> <td>-50</td> <td>6</td> </tr> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>+50</td> <td>4</td> </tr> <tr> <td>+100</td> <td>0</td> </tr> </tbody> </table> | Category | Count | -100 | 4 | -50 | 6 | 0 | 0 | +50 | 4 | +100 | 0 |
| Category | Count | | | | | | | | | | | | | |
| -100 | 4 | | | | | | | | | | | | | |
| -50 | 6 | | | | | | | | | | | | | |
| 0 | 0 | | | | | | | | | | | | | |
| +50 | 4 | | | | | | | | | | | | | |
| +100 | 0 | | | | | | | | | | | | | |
| 13. It was often hard to discover what was expected of me in this course | +46 | <table border="1"> <caption>Histogram Data for Question 13</caption> <thead> <tr> <th>Category</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>0</td> </tr> <tr> <td>-50</td> <td>2</td> </tr> <tr> <td>0</td> <td>2</td> </tr> <tr> <td>+50</td> <td>5</td> </tr> <tr> <td>+100</td> <td>5</td> </tr> </tbody> </table> | Category | Count | -100 | 0 | -50 | 2 | 0 | 2 | +50 | 5 | +100 | 5 |
| Category | Count | | | | | | | | | | | | | |
| -100 | 0 | | | | | | | | | | | | | |
| -50 | 2 | | | | | | | | | | | | | |
| 0 | 2 | | | | | | | | | | | | | |
| +50 | 5 | | | | | | | | | | | | | |
| +100 | 5 | | | | | | | | | | | | | |
| 25. The teachers made it clear right from the start what they expected from the students | -29 | <table border="1"> <caption>Histogram Data for Question 25</caption> <thead> <tr> <th>Category</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>6</td> </tr> <tr> <td>-50</td> <td>2</td> </tr> <tr> <td>0</td> <td>2</td> </tr> <tr> <td>+50</td> <td>2</td> </tr> <tr> <td>+100</td> <td>2</td> </tr> </tbody> </table> | Category | Count | -100 | 6 | -50 | 2 | 0 | 2 | +50 | 2 | +100 | 2 |
| Category | Count | | | | | | | | | | | | | |
| -100 | 6 | | | | | | | | | | | | | |
| -50 | 2 | | | | | | | | | | | | | |
| 0 | 2 | | | | | | | | | | | | | |
| +50 | 2 | | | | | | | | | | | | | |
| +100 | 2 | | | | | | | | | | | | | |

Appropriate Assessment (+58)

| Question | CEQ-score | Histogram | | | | | | | | | | | | |
|---|-----------|---|-------|-----------|------|----|-----|---|---|---|-----|---|------|---|
| 8. To do well in this course all you really needed was a good memory | -79 |  <table border="1"> <caption>Histogram Data for Question 8</caption> <thead> <tr> <th>Score</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>11</td> </tr> <tr> <td>-50</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> </tr> <tr> <td>+50</td> <td>1</td> </tr> <tr> <td>+100</td> <td>0</td> </tr> </tbody> </table> | Score | Frequency | -100 | 11 | -50 | 1 | 0 | 1 | +50 | 1 | +100 | 0 |
| Score | Frequency | | | | | | | | | | | | | |
| -100 | 11 | | | | | | | | | | | | | |
| -50 | 1 | | | | | | | | | | | | | |
| 0 | 1 | | | | | | | | | | | | | |
| +50 | 1 | | | | | | | | | | | | | |
| +100 | 0 | | | | | | | | | | | | | |
| 12. The teachers seemed more interested in testing what I had memorised than what I had understood | -46 |  <table border="1"> <caption>Histogram Data for Question 12</caption> <thead> <tr> <th>Score</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>6</td> </tr> <tr> <td>-50</td> <td>3</td> </tr> <tr> <td>0</td> <td>2</td> </tr> <tr> <td>+50</td> <td>1</td> </tr> <tr> <td>+100</td> <td>1</td> </tr> </tbody> </table> | Score | Frequency | -100 | 6 | -50 | 3 | 0 | 2 | +50 | 1 | +100 | 1 |
| Score | Frequency | | | | | | | | | | | | | |
| -100 | 6 | | | | | | | | | | | | | |
| -50 | 3 | | | | | | | | | | | | | |
| 0 | 2 | | | | | | | | | | | | | |
| +50 | 1 | | | | | | | | | | | | | |
| +100 | 1 | | | | | | | | | | | | | |
| 16. The assessment methods employed in this course required an in-depth understanding of the course content | +41 |  <table border="1"> <caption>Histogram Data for Question 16</caption> <thead> <tr> <th>Score</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>0</td> </tr> <tr> <td>-50</td> <td>2</td> </tr> <tr> <td>0</td> <td>2</td> </tr> <tr> <td>+50</td> <td>3</td> </tr> <tr> <td>+100</td> <td>4</td> </tr> </tbody> </table> | Score | Frequency | -100 | 0 | -50 | 2 | 0 | 2 | +50 | 3 | +100 | 4 |
| Score | Frequency | | | | | | | | | | | | | |
| -100 | 0 | | | | | | | | | | | | | |
| -50 | 2 | | | | | | | | | | | | | |
| 0 | 2 | | | | | | | | | | | | | |
| +50 | 3 | | | | | | | | | | | | | |
| +100 | 4 | | | | | | | | | | | | | |
| 20. Too much of the assessment was just about facts | -79 |  <table border="1"> <caption>Histogram Data for Question 20</caption> <thead> <tr> <th>Score</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>10</td> </tr> <tr> <td>-50</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> </tr> <tr> <td>+50</td> <td>1</td> </tr> <tr> <td>+100</td> <td>0</td> </tr> </tbody> </table> | Score | Frequency | -100 | 10 | -50 | 0 | 0 | 1 | +50 | 1 | +100 | 0 |
| Score | Frequency | | | | | | | | | | | | | |
| -100 | 10 | | | | | | | | | | | | | |
| -50 | 0 | | | | | | | | | | | | | |
| 0 | 1 | | | | | | | | | | | | | |
| +50 | 1 | | | | | | | | | | | | | |
| +100 | 0 | | | | | | | | | | | | | |

Appropriate Workload (-8)

| Question | CEQ-score | Histogram | | | | | | | | | | | | |
|--|-----------|--|-------------|-----------|-------------|---|------------|---|------------|---|----------|---|---------|---|
| 4. The workload has been much too heavy | +0 | <table border="1"> <caption>Histogram Data for Question 4</caption> <thead> <tr> <th>Score Range</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -75</td> <td>0</td> </tr> <tr> <td>-75 to -50</td> <td>4</td> </tr> <tr> <td>-50 to -25</td> <td>7</td> </tr> <tr> <td>-25 to 0</td> <td>2</td> </tr> <tr> <td>0 to 25</td> <td>1</td> </tr> </tbody> </table> | Score Range | Frequency | -100 to -75 | 0 | -75 to -50 | 4 | -50 to -25 | 7 | -25 to 0 | 2 | 0 to 25 | 1 |
| Score Range | Frequency | | | | | | | | | | | | | |
| -100 to -75 | 0 | | | | | | | | | | | | | |
| -75 to -50 | 4 | | | | | | | | | | | | | |
| -50 to -25 | 7 | | | | | | | | | | | | | |
| -25 to 0 | 2 | | | | | | | | | | | | | |
| 0 to 25 | 1 | | | | | | | | | | | | | |
| 14. I was generally given enough time to understand the things I had to learn | +4 | <table border="1"> <caption>Histogram Data for Question 14</caption> <thead> <tr> <th>Score Range</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -75</td> <td>0</td> </tr> <tr> <td>-75 to -50</td> <td>5</td> </tr> <tr> <td>-50 to -25</td> <td>4</td> </tr> <tr> <td>-25 to 0</td> <td>2</td> </tr> <tr> <td>0 to 25</td> <td>2</td> </tr> </tbody> </table> | Score Range | Frequency | -100 to -75 | 0 | -75 to -50 | 5 | -50 to -25 | 4 | -25 to 0 | 2 | 0 to 25 | 2 |
| Score Range | Frequency | | | | | | | | | | | | | |
| -100 to -75 | 0 | | | | | | | | | | | | | |
| -75 to -50 | 5 | | | | | | | | | | | | | |
| -50 to -25 | 4 | | | | | | | | | | | | | |
| -25 to 0 | 2 | | | | | | | | | | | | | |
| 0 to 25 | 2 | | | | | | | | | | | | | |
| 22. There was a lot of pressure on me as a student in this course | +31 | <table border="1"> <caption>Histogram Data for Question 22</caption> <thead> <tr> <th>Score Range</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -75</td> <td>0</td> </tr> <tr> <td>-75 to -50</td> <td>3</td> </tr> <tr> <td>-50 to -25</td> <td>2</td> </tr> <tr> <td>-25 to 0</td> <td>5</td> </tr> <tr> <td>0 to 25</td> <td>3</td> </tr> </tbody> </table> | Score Range | Frequency | -100 to -75 | 0 | -75 to -50 | 3 | -50 to -25 | 2 | -25 to 0 | 5 | 0 to 25 | 3 |
| Score Range | Frequency | | | | | | | | | | | | | |
| -100 to -75 | 0 | | | | | | | | | | | | | |
| -75 to -50 | 3 | | | | | | | | | | | | | |
| -50 to -25 | 2 | | | | | | | | | | | | | |
| -25 to 0 | 5 | | | | | | | | | | | | | |
| 0 to 25 | 3 | | | | | | | | | | | | | |
| 24. The sheer volume of work in this course made it impossible to comprehend everything thoroughly | -7 | <table border="1"> <caption>Histogram Data for Question 24</caption> <thead> <tr> <th>Score Range</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -75</td> <td>1</td> </tr> <tr> <td>-75 to -50</td> <td>6</td> </tr> <tr> <td>-50 to -25</td> <td>3</td> </tr> <tr> <td>-25 to 0</td> <td>2</td> </tr> <tr> <td>0 to 25</td> <td>2</td> </tr> </tbody> </table> | Score Range | Frequency | -100 to -75 | 1 | -75 to -50 | 6 | -50 to -25 | 3 | -25 to 0 | 2 | 0 to 25 | 2 |
| Score Range | Frequency | | | | | | | | | | | | | |
| -100 to -75 | 1 | | | | | | | | | | | | | |
| -75 to -50 | 6 | | | | | | | | | | | | | |
| -50 to -25 | 3 | | | | | | | | | | | | | |
| -25 to 0 | 2 | | | | | | | | | | | | | |
| 0 to 25 | 2 | | | | | | | | | | | | | |

Generic Skills (+1)

| Question | CEQ-score | Histogram | | | | | | | | | | | | |
|---|-----------|---|-------------|-----------|-------------|---|------------|---|------------|---|----------|---|---------|---|
| 2. The course has developed my problem-solving skills | +38 | <table border="1"> <caption>Data for Histogram 2</caption> <thead> <tr> <th>Score Range</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -75</td> <td>0</td> </tr> <tr> <td>-75 to -50</td> <td>2</td> </tr> <tr> <td>-50 to -25</td> <td>3</td> </tr> <tr> <td>-25 to 0</td> <td>4</td> </tr> <tr> <td>0 to 25</td> <td>4</td> </tr> </tbody> </table> | Score Range | Frequency | -100 to -75 | 0 | -75 to -50 | 2 | -50 to -25 | 3 | -25 to 0 | 4 | 0 to 25 | 4 |
| Score Range | Frequency | | | | | | | | | | | | | |
| -100 to -75 | 0 | | | | | | | | | | | | | |
| -75 to -50 | 2 | | | | | | | | | | | | | |
| -50 to -25 | 3 | | | | | | | | | | | | | |
| -25 to 0 | 4 | | | | | | | | | | | | | |
| 0 to 25 | 4 | | | | | | | | | | | | | |
| 5. The course has sharpened my analytic skills | +29 | <table border="1"> <caption>Data for Histogram 5</caption> <thead> <tr> <th>Score Range</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -75</td> <td>0</td> </tr> <tr> <td>-75 to -50</td> <td>3</td> </tr> <tr> <td>-50 to -25</td> <td>3</td> </tr> <tr> <td>-25 to 0</td> <td>5</td> </tr> <tr> <td>0 to 25</td> <td>3</td> </tr> </tbody> </table> | Score Range | Frequency | -100 to -75 | 0 | -75 to -50 | 3 | -50 to -25 | 3 | -25 to 0 | 5 | 0 to 25 | 3 |
| Score Range | Frequency | | | | | | | | | | | | | |
| -100 to -75 | 0 | | | | | | | | | | | | | |
| -75 to -50 | 3 | | | | | | | | | | | | | |
| -50 to -25 | 3 | | | | | | | | | | | | | |
| -25 to 0 | 5 | | | | | | | | | | | | | |
| 0 to 25 | 3 | | | | | | | | | | | | | |
| 9. The course helped me develop my ability to work in a group | +11 | <table border="1"> <caption>Data for Histogram 9</caption> <thead> <tr> <th>Score Range</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -75</td> <td>3</td> </tr> <tr> <td>-75 to -50</td> <td>1</td> </tr> <tr> <td>-50 to -25</td> <td>4</td> </tr> <tr> <td>-25 to 0</td> <td>2</td> </tr> <tr> <td>0 to 25</td> <td>4</td> </tr> </tbody> </table> | Score Range | Frequency | -100 to -75 | 3 | -75 to -50 | 1 | -50 to -25 | 4 | -25 to 0 | 2 | 0 to 25 | 4 |
| Score Range | Frequency | | | | | | | | | | | | | |
| -100 to -75 | 3 | | | | | | | | | | | | | |
| -75 to -50 | 1 | | | | | | | | | | | | | |
| -50 to -25 | 4 | | | | | | | | | | | | | |
| -25 to 0 | 2 | | | | | | | | | | | | | |
| 0 to 25 | 4 | | | | | | | | | | | | | |
| 10. The course has made me feel more confident about tackling new and unfamiliar problems | +12 | <table border="1"> <caption>Data for Histogram 10</caption> <thead> <tr> <th>Score Range</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -75</td> <td>2</td> </tr> <tr> <td>-75 to -50</td> <td>2</td> </tr> <tr> <td>-50 to -25</td> <td>3</td> </tr> <tr> <td>-25 to 0</td> <td>3</td> </tr> <tr> <td>0 to 25</td> <td>3</td> </tr> </tbody> </table> | Score Range | Frequency | -100 to -75 | 2 | -75 to -50 | 2 | -50 to -25 | 3 | -25 to 0 | 3 | 0 to 25 | 3 |
| Score Range | Frequency | | | | | | | | | | | | | |
| -100 to -75 | 2 | | | | | | | | | | | | | |
| -75 to -50 | 2 | | | | | | | | | | | | | |
| -50 to -25 | 3 | | | | | | | | | | | | | |
| -25 to 0 | 3 | | | | | | | | | | | | | |
| 0 to 25 | 3 | | | | | | | | | | | | | |
| 11. The course has improved my skills in written communication | -32 | <table border="1"> <caption>Data for Histogram 11</caption> <thead> <tr> <th>Score Range</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -75</td> <td>4</td> </tr> <tr> <td>-75 to -50</td> <td>2</td> </tr> <tr> <td>-50 to -25</td> <td>3</td> </tr> <tr> <td>-25 to 0</td> <td>1</td> </tr> <tr> <td>0 to 25</td> <td>1</td> </tr> </tbody> </table> | Score Range | Frequency | -100 to -75 | 4 | -75 to -50 | 2 | -50 to -25 | 3 | -25 to 0 | 1 | 0 to 25 | 1 |
| Score Range | Frequency | | | | | | | | | | | | | |
| -100 to -75 | 4 | | | | | | | | | | | | | |
| -75 to -50 | 2 | | | | | | | | | | | | | |
| -50 to -25 | 3 | | | | | | | | | | | | | |
| -25 to 0 | 1 | | | | | | | | | | | | | |
| 0 to 25 | 1 | | | | | | | | | | | | | |
| 23. The course has helped me to develop the ability to plan my work | +0 | <table border="1"> <caption>Data for Histogram 23</caption> <thead> <tr> <th>Score Range</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>-100 to -75</td> <td>1</td> </tr> <tr> <td>-75 to -50</td> <td>3</td> </tr> <tr> <td>-50 to -25</td> <td>4</td> </tr> <tr> <td>-25 to 0</td> <td>3</td> </tr> <tr> <td>0 to 25</td> <td>1</td> </tr> </tbody> </table> | Score Range | Frequency | -100 to -75 | 1 | -75 to -50 | 3 | -50 to -25 | 4 | -25 to 0 | 3 | 0 to 25 | 1 |
| Score Range | Frequency | | | | | | | | | | | | | |
| -100 to -75 | 1 | | | | | | | | | | | | | |
| -75 to -50 | 3 | | | | | | | | | | | | | |
| -50 to -25 | 4 | | | | | | | | | | | | | |
| -25 to 0 | 3 | | | | | | | | | | | | | |
| 0 to 25 | 1 | | | | | | | | | | | | | |

Free text answers

The free text answers are pre-reviewed by the students' representatives.

What were the best aspects of the course

Satisfied students

The course materials and contents are very interesting. From a math and algorithms standpoint I found them very useful and important. Especially CNN and optimization methods.

The ability of the explanation if the lecturer was great.

Neutral students

Kursen är både utmanande och relevant. Det ger förutsättningar för att utveckla färdigheter i problemlösning.

Dissatisfied students

Fun projects.

Even though I have been quite critical here the course has potential since the problems are genuinely good and interesting.

The topics covered in the various projects were interesting, and provided a good complement to other courses I have taken. The difficulty level was okay, although more advanced software optimization concepts could have been included.

Redovisningarna var givande och det var intressant att se andras lösningar samt diskutera olika tillvägagångssätt med fördelar och nackdelar.

Kursnehållet i kursen är intresant och välgjort.

What aspects of the course are most in need of improvement?

Satisfied students

The expected standard of the presentation and hand in assignments is very unclear. There are obvious disparities when it comes to the quality of the code between various groups, and a clear standard of what is acceptable to pass the homework assignments needs to be communicated from day 1.

Furthermore, because the student body of this class comes from various departments, people have different levels of understanding when it comes to math concepts. More explanation on the math behind the algorithms will be much appreciated.

Maybe having other assignments than just the project to do something else then just these big 3 projects.

Too much mathematical facts that some of them are out of date in comparison with the numerical algorithms that is state of art.

Neutral students

Det verkar som att det har funnits en dissonans mellan lärare på kursen och studenterna gällande vilken nivå det bör vara på presentationen av projekten. Jag vill hävda att det är lärarnas ansvar att se till att majoriteten av studenterna lever upp till det som förväntas genom tydlig kommunikation. Kursen i sig är väldigt intressant och man lär sig mycket om man är beredd att lägga ner tiden. Det har förekommit problem med kommunikationen via Canvas som varit mycket förvirrande, exempelvis vilken lokal som avses för presentationerna och vad som gäller för kamratgranskningar. Jag själv hamnade i en grupp där det i slutet endast var två studenter inklusive mig själv som bidrog till projektet. Jag föreslår att det införs tydligare uppföljning av arbetsgången i gruppen och säkerställs att alla i gruppen bidrar på något sätt. Kanske genom handledningsmöten, eller att man helt enkelt gör grupperna mindre och ändrar examinationsformen till en rapport eller dylikt. Det kändes rent fruktansvärt att ge tre studenter som inte bidragit fria högskolepoäng i en avancerad matematikkurs. Ett sätt att öka studenternas engagemang skulle kunna vara att införa betygsskala på kursen.

Sometimes I felt the theory given during the lectures wasn't enough to solve the labs, especially if you didn't have any prior knowledge on the subject. However I understand you can't have too many lectures since you need to start up the labs.

Dissatisfied students

Feedback FMNN25

After presentation 2 we were told off for poor presentations, while I agree they were poor, here are some things to consider:

1. Firstly, there was a comment made due to our group being late, we were standing at the other classroom listed, it did not explicitly say where we were supposed to be. Due to your track record of coming to the room XX.13 we opted for waiting until XX.15 to see if you would show up. So, be clearer with which room the seminar is in.
2. You said our presentations were poor, but you haven't given any guidelines other than "no slides". My suggestion would be to write a short list of expectations; time, structure, contents
3. The issue during this presentation was that one group (of six) presented for 35 min, this led to the rest of the groups rushing and having even worse presentations, I think it was your responsibility to stop them (which you improved for project 3).
4. You also made a comment about teamwork, yet again I agree that groups shouldn't hand in 15 files, but this could be solved in point 2. You have to take into account that this is a course with very few people who know each other and are doing the same courses. Of course teamwork is beneficial, but then it also needs to be a project which can be tackled from different angles at the same time. All the projects in this course were very linear which meant it was hard to work together efficiently. This also meant that people in the groups disappeared and didn't do any work, because of the lack of repercussions. I suggest smaller groups next year, and projects with more modular nature.
5. My biggest issue is that there was no way to ask for help. You got the information during the lectures and then you were left on your own. I know that is what it's like at work, but we are not at work yet, we are still learning and would need to have the ability to be able to ask questions. So for next year I suggest "övningar" the same way you have in the introductory math courses. Maybe once a week is enough, but at least some sort of possibility to ask for help.

Make it more clear what you expect

Ensure everyone does something, as now it is on the students to point out when others didn't do anything. It comes with a high social cost though and it really shouldn't be the students job to do that. Half my group passed without really contributing...

The teachers should structure the presentations and time management. during one of the presentations we

were 6 groups and the teachers let the first group talk for 40 (!??) minutes. When it was our turn we were 15 minutes over time already and we had to stress through it. We didn't get the same opportunity to present and get feedback at all.

I think the reason for the work not being as good as the teachers wanted from the students is that it is super unclear what is expected. And students still pass this course super easily so they rather put work into their other courses.

Also no other student took the time to learn git for example. Maybe have some obligatory workshop in it and then "force" people to use it by looking at peoples repo history. Could be a good opportunity for people to learn.

The assessment was abysmal - despite being asked multiple times during early lectures, neither lecturer provided a clear definition for what they expected during the presentation sessions. This led to long, drawn-out sessions with groups going through their code line-by-line rather than any sort of constructive presentation with discussion about implementation choices. .Something as simple as setting a hard time-limit for presentation and opposition would have drastically improved things, but this was never introduced.

Det är en extremt rörig kurs som inte alls är sammanhängande. Den första labben var näst intill omöjlig för någon som inte har bakgrund inom neurala nätverk vilket gör att det inte går att dela upp arbetet jämt i gruppen. Det känns som att denna kurs bara testade tidigare kunskaper utan att lära ut något nytt. Det går även att komma undan väldigt lätt utan att göra något som individ i gruppen då kursansvarig inte verkade bry sig om vem som gjort vad eller ens att läsa genom det man lämnat in. Det verkade som att de bara brydde sig om vad gruppen redovisade, oavsett om det bara var en person som presenterade.

Presentationen är tänkt att vara ett diskussionsseminarium där de olika grupperna diskuterar och jämför sina lösningar på projektet. I verkligheten fungerar detta inte över huvud taget. Konceptet hade kunnat fungera med bra styrning från kursansvariga, men istället så gör kursansvarigas ledning presentationen värre. Här följer några konkreta punkter på vad som går fel. Det finns ingen struktur på presentationerna. Presentationen håller på i två timmar men i början valdes en grupp och de fick prata tills de var klara eller kursansvarig ville gå vidare. Resultatet blev att vissa grupper presentera i 40 min medans andra presenterade i 5 min. De säger att grupparbetet ska fördelas jämt, men under presentationerna kunde en person prata hela tiden utan att de ställde frågor till någon annan i gruppen.

Det finns inte heller någon handledning för projekten. Studenterna får föreläsningar som introducerade ämnet och sedan inget annat förens projektet ska presenteras. Kursen hade kunnat förbättras väldigt mycket med övningstillfällen där man kan fråga om hjälp. Särskilt då föreläsningarna är ganska ytliga och man förväntas fundera ut resten av teorin själv. Framför allt var detta ett problem med första projektet där det känns som de antar att man kan maskininläring sedan innan. Under presentationerna kändes det inte heller som de ansvariga hade koll på de olika gruppernas kod. Jag fick intrycket att de kollade på resultatet, men inget i själva koden vilket blir helt absurt när man ska diskutera olika lösningar.

Överlag hade kursen kunna varit väldigt bra då mycket av innehållet är nyttigt, men som det står är det en av de sämsta kurserna jag läst på LTH.

It would be great if it was explained in more detail that the course was just mathematically heavy. As a student of the Embedded Electronics Engineering programme, I just could not see how this was useful. Would be much better if there was another course dedicated to teaching Python, Perl, and Tcl for the semiconductor industry.