



A short report on yet another runs of JCSE in Novi Sad

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DAAD Project

“Joint Course on Software Engineering”

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Version: June 12, 2006

Facts:

- ▶ During the school-year 2005/06, at the DMI in Novi Sad, we performed two runs of JCSE course:
 - a graduate course – for the fourth time, and
 - a undergraduate course – for the second time

- ▶ Let us check on the outcomes ...



Facts:

▶ A graduate course:

- Started and ended with 9 students;
- *All* of the students are employed, so the classes were organized for them specially, on Saturdays;
- Students have different background – some graduated from the Faculty of Science, others from the Faculty of Technical Sciences;

Facts:

▶ A graduate course:

- Students were given 4 assignments. Three of those are the same as the assignments given during the regular course, the 4th is a new one;
- Students who solved all of the assignments in a satisfactory manner, were offered a (excellent) mark, which they (naturally) accepted;
- Some of the students „failed“ on one of the assignments – not all of them on the same one.
- They had to answer some additional questions from that area, which they did – much better than in the assignment.



Facts:

▶ A graduate course:

- A simple explanation for the fact that graduate students failed on some assignment, while it *never* happened at the undergraduate course exists!
- At the undergraduate course, assignments were solved by a *team*. Teams had from 3 to 5 students.
- At the graduate course, assignments were solved by a single person.
- While there were some problems with the understanding of the assignments at the undergraduate level, *some* of the team members understood, or asked the professor, or consulted the assistant.
- At the graduate level, they *first* solved, *then* asked ...



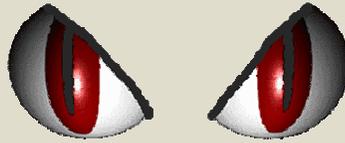
Facts:

▶ A undergraduate course:

- Started with 65, ended with 56 students;
- Starting from the school-year 2005/06, a „new and improved“ curriculum in computer science is created. The students were allowed to switch to it.
- So – 3 students that we know of decided to drop-out of a course, and finish the faculty without the „Software engineering“ course. It is possible there is more like these, we don't know of.
- ... while additional 6 students stopped in the middle of the course, got their marks, and switched to a new curriculum.



Facts:



▶ A undergraduate course:

- Students were given 7 assignments. We wanted to include some „new“ assignments, different from those of the last year, yet we didn't manage;
- Assignment solving was not as successful as the last year. There were several problems:
 - For the first assignment, 3 teams (or at least some of the members of those teams) managed to „find“ the correct solution from last year teams;
 - Depending on the quantity of stolen material, those teams were penalized with deduction of 5, 6, or 7 points.

Facts:

▶ A undergraduate course:

- During the class dedicated to the presentation of the „correct solution“, teams were also shown a comparison of their and stolen material;
- There was *NO* misunderstanding, *NO* complaints about the punishment, there was only a few shocked looks.  Obviously, those were acts of individuals, not whole teams were involved!
 - Consequence 1: 4 members of a 5-member team, approached us asking for a permission to fire their 5th member;
 - Consequence 2: One of the penalized teams asked us “not to check” their 2nd assignment, because “... it has the same *quality* as the first one ...” (quote)

Facts:

▶ A undergraduate course:

- There was one more thing that highly influence a success of students:
 - Among 56 enrolled students, 9 were students of a *mixed, geography+informatics* curriculum.
 - Those students have a much lower background knowledge in computer science,
 - Those students have only about a 1/3 of CS exams from the curriculum
 - Those students had a chance to chose exams on previous years, so even those CS exams that *were offered* to them, usually *are not* chosen.
 - As a consequence – their marks were much, much lower ...



Facts:

▶ For example - assignments:

- One of the teams of “mixed” students solved 6 out of 7 assignments – marks were not too high – and passed that part.
- Another team solved only 2 assignments, before half of the team decided that it’s “too difficult for them” (quote) and quit.
- The other half of the team solved one more assignment, then they dropped-out too.

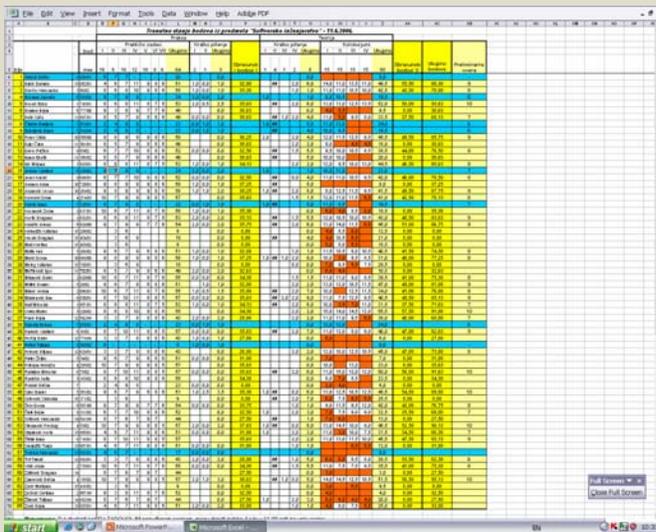


Facts:

- ▶ For example - tests:
 - Out of 9 students, only 3 of them tried *all 4* tests.
 - Out of 9 students, only 1 passed (necessary) 2 tests
 - Out of 26 tests they had, *only 7* were with passable results.
 - What could we do, but to lower the criteria a bit for them – instead of 50%, geography-informatics students are required to do 40%.
 - THAT ACTUALLY DIDN'T CHANGE A THING – NOONE PASSED THE EXAM – BUT IT'LL HELP IN THE FOLLOWING EXAM PERIODS. We sincerely hope.

Final marks:

- ▶ After applying the same (complicated and sophisticated) method of marking as for the previous year ...



The image shows a screenshot of a Microsoft Excel spreadsheet. The spreadsheet contains a large table with many columns and rows. The data is organized into several sections, with some rows highlighted in yellow and others in blue. The columns appear to contain numerical values, possibly marks or scores, and some text labels. The spreadsheet is titled 'Transfer class Austria (Informatics - Software Engineering) - 2013/2014'. The Excel interface is visible, including the menu bar at the top and the taskbar at the bottom.

Final marks:

▶ ... that consisted of – let us be reminded:



- a person is required to gain *at least* 50% of points awarded for the assignments (so-called *practice*),
 - a person is required to gain *at least* 50% of points awarded for the tests (so-called *theory*),
 - a person is required to pass *at least* 2 test, out of 4.
-
- As a help, we organized several additional, and bonus short-tests, bonus-questions, did-you-follow-a-lesson-carefully questions, BOTH for practice and for theory.

Final marks:

▶ ... that consisted of – let us be reminded:

- Those are *bonus* in a sense that “if you have them, they *do* count, they *do* add to 50% of points”, yet ...
- ... “if you *do not* have them, they are simply not counted”.

- Proof: A person who did not attend *any* of those *bonus* tests, nor gained *any* of bonus points, at the end of the course have a mark 10, just through regular assignments and test points.



Final marks:

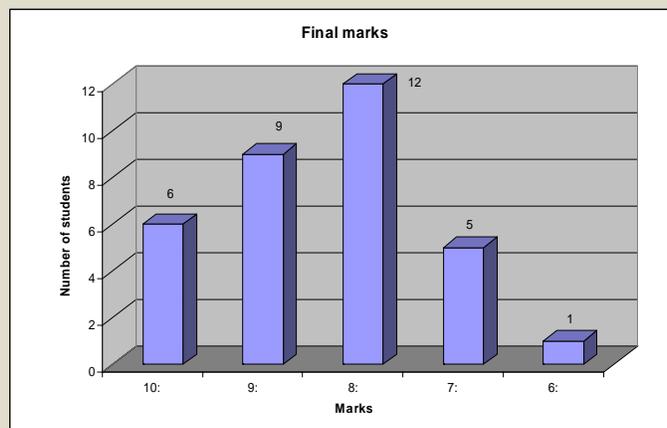
- ▶ After calculating number of points for each student, we proceed to:
 - Mark the highest number of points,
 - Mark the lowest number of points (still passable, of course)
 - Divide this scale into a normal, Gauss-ian distribution, slightly adjusted to our preferences:
 - top 15% OF POINTS gives a person mark 10,
 - the next 25% OF POINTS deserve mark 9,
 - the rest of the marks are divided as 25%, 25%, and 10%



After applying this distribution, we noticed that there are 2 persons needing about a 0.5 of a point for a higher mark, which we naturally re-adjusted.

Final marks:

- ▶ Total of 33 students (of 56 enrolled), finished with a positive mark.
- ▶ The distribution of marks was the following:



Final marks:

► If we take a more detailed look into assignments and test results, this is what we have:

- Total number of students on 4 tests: 198
- Average number of students per test: 49

- Average number of students *passing* a test: 35
- (Average number of students *failing* a test: 14)

- Average number of points gained at a test: 9.3



Final marks:

► Yet – we think that instead of “general” results, we should consider only the results of a pure CS students.
(That’s because those results look much better):



- Average number of students per test: 42 (was 49)

- Average number of students *passing* a test: 34 (was 35)
- (Average number of students *failing* a test: 8 (was 14)

- Average number of points gained at a test: 9.9 (out of 15)

Final marks:

- ▶ So – if we draw a portrait of our average computer science student, it would be something like this:
 - (S)he gained 82% points for the assignments
 - (S)he gained 26% bonus points for practice
 - (S)he gained 53% points for the tests
 - (S)he gained 39% bonus points for theory
 - Summing up all of the above, (s)he got mark 8,4.

Our marks

- ▶ As every year, we gave students a questionnaire to check on how they are satisfied with us (we do not have all of the questionnaires back, only about 60%).
- ▶ As we still have last-year results, we will compare them with the new ones:
 - Students attended slightly less lectures 70% (75%)
 - So – it took them more time to
 - process the lectures 1.96 hrs (1.2)
 - and solve the assignments 3.91 hrs (2.63)

Our marks

- ▶ Considering students opinion about the contents of a course, it didn't change significantly:

	This year (last year)	We wanted
▶ Amount of knowledge adequate:	3.28 (3.21)	3
▶ Contents of a lesson adequate:	2.89 (3.04)	3
▶ Course well structured	3.56 (3.46)	5

- ▶ Since we DO HAVE opinions of graduate students, for the last 3 years, we'll mention THEIR marks for the last question: 4.29 (2003), 4.00 (2004) and 4.22 (2005).
- ▶ Are WE better there, or do THEY have a better insight into a real life?

Remarks

- ▶ Remarks about the course, didn't change much since the last year:

- No needed pre-knowledge, everything is explained in topics.
- All of the needed pre-knowledge was achieved in some other course throughout the studies.
- And
Percentage of students wanting slides in Serbian decreased, of those wanting slides in English increased.

Our marks

- ▶ With “style of lectures” we improved on every issue:

	This year (last year)	We wanted
▶ Lecturer familiar with the content:	4.61 (4.50)	5
▶ Lectures well prepared:	4.47 (4.25)	5
▶ Lecturer engaged:	4.24 (4.04)	5
▶ Lecturer willing to answer students' questions:	4.78 (4.46)	5
▶ Speed of presentation:	3.17 (3.25)	3
▶ Presentation style encouraging to follow the lecture:	3,50 (2,92)	5

Remarks

- ▶ We had some constructive remarks:
 - “Course is useful, yet it has too much material, so we just scratched the surface, which is not enough for the practical work.”
- ▶ And “other” remarks:
 - “Exam that doesn't mean much to students and it's too abstract, while for a programmer with 10 years of experience it's not needed. It would be better to pass through each phase of a project, creating a final product at the end.”
- ▶ Why “other”? Because the SAME student then claims:
 - “Yet – the course succeeded in disciplining us! For example, I'm writing my diploma thesis at the moment, EXACTLY the way it was suggested and explained work should be done during the course.”

Our marks

- ▶ With “usage of a media”, situation is insignificantly better than it was:

	This year (last year)	We wanted
▶ Amount of info on slides adequate:	3.50 (3.38)	5
▶ Slides well structured and clearly organized:	3.50 (3.38)	5

- ▶ Since this is the worst mark we gained, let us present some textual remarks:
 - Slides are too colorful, with weak descriptions, and too many balloons containing explanations that are too short and not useful.
 - Professor is OK, but context is not so OK.
- ▶ These low marks are very probably due to a habit of our students to have *everything* in books (or slides), not used to take notes and listen carefully!

Our marks

- ▶ “Assignments” were assessed satisfactorily:

	This year (last year)	We wanted
▶ Assignments difficult to solve:	3.18 (3.21)	3
▶ Assignments motivating:	3.41 (2.71)	5

- ▶ Yet again, like every year, we have a (single) person complaining about the assignments throughout the course:
 - “We need more attention on practical assignments, more assignments, more lessons on “how to solve them””.
 - The assignments are OK, but the project (SemOrg) is too complex, abstract and boring. A more exciting project, like an online shop, would draw more interest.

Our marks

- ▶ Final marks for the course, didn't change much. This is good, considering they were quite OK:

	This year (last year)	We wanted
• Did You learn a lot of new things:	4.06 (4.08)	5
• Do You think the contents of a lecture is useful:	4.11 (4.08)	5
• What is Your OVERALL rank of a course:	4.00 (4.00)	5 (?)

Remarks

- ▶ Again, for the final, general remarks, we had one “other” remark:
 - “Course is very BORING, as all slide-courses are. It's a waste of time, we should watch a market and improve in something else, and leave this one to nerds wanting to become MSc or PhD and geniuses-managers (even the word *manager* gives me chills).”
- ▶ And we had several constructive critics, complaining about the similar things:
 - “I'd prefer more attention put on practical things, connected with a practice, and less on theory.”
 - More examples, sometimes our assignments were the only example, so we didn't know what should be the answer.
 - More realistic examples, examples "how certain company solved certain problem".
 - More attention on practical assignments, more assignments, more lessons on "how to solve them".
 - Course is well planed, but it should be more practical, so that we don't need to learn it all over again in real situations.

Remarks

- ▶ Yet, of course, we had much more good opinions, which we will quote with pleasure:
 - “Very interesting, but more for a project leader. I'd wish to see the same course intended for a programmer.”
 - “The course is well.” (citation, not a translation)
 - “Very practical knowledge.”
 - “Very useful course, offers adjustment to a group work. Each topic offers something new, sometimes interesting, sometimes boring.”
 - “Good conclusion of the study!”
 - “Excellent!”