

Experience in delivering JCSE in several countries



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Previously on workshop



- 4 universities (Berlin, Novi Sad, Skopje, Tirana)
- 6 courses (2 in Novi Sad: for students of informatics and for students of teaching methods, 2 in Skopje: for students of 3-year and 4-year studies)
- Emphasis is on assignments and tests

Previously on workshop, data



- Novi Sad (bachelor): 4 years
- Tirana (master): 1 year
- Skopje (bachelor): 1 year
- Berlin (bachelor): 3 years

Previously on workshop, conclusions



Course	Final mark
NS CS 2004	8,24
NS CS 2005	7,94
NS CS 2006	8,24
NS CS 2007	8,29
NS Prof 2004	6,50
NS Prof 2005	6,00
NS Prof 2006	7,25
NS Prof 2007	6,50
Tirana	8,24
Skopje III year	8,11
Skopje IV year	8,31

Previously on workshop, conclusions




- No matter what you do the average will be around 8.20
☺
- Seriously:
 - Student's experience matters – better achievements by 'older' students (SE is such kind of field)
 - Lecturers' experience matters (Novi Sad, Skopje) although we had the same criteria (SE is such kind of field where there is no 'correct solution')
 - Otherwise, problems of SE are universal.
- Also:
 - Discussions: who is 'better' in formal methods, why Berlin students are worse in last assignments...

Now



- Novi Sad (bachelor): 4 years → 5 years
- Tirana (master): 1 year → 2 years (+1)
- Skopje (bachelor): 1 year → 2 years (+1)
- Berlin (bachelor): 3 years → 3 years


Novi Sad, informatics, assignments



Novi Sad	Nr of Students	Average Points Assgn 1	Average Points Assgn 2	Average Points Assgn 3	Average Points Assgn 4	Average Points Assgn 5	Average Points Assgn 6	Average Points Assgn 7	Total Points Assgn
2004	45	81,11%	66,67%	63,78%	73,11%	75,78%	88,61%	68,52%	74,05%
2005	54	73,89%	74,53%	80,38%	79,90%	80,68%	94,32%	95,45%	81,75%
2006	60	81,67%	75,42%	88,00%	75,56%	80,67%	87,25%	85,50%	81,85%
2007	66	77,73%	75,99%	85,76%	77,42%	78,30%	94,38%	91,67%	82,18%
2008	47	80,20%	69,63%	80,20%	69,33%	50,40%	87,25%	85,50%	73,56%
Average		78,92%	72,45%	79,62%	75,06%	73,17%	91,14%	87,23%	78,68%

Why? Before: inexperience of teachers? Now: Bologna, 'bad generation'?
FP analysis, worst results. As before: inexperience of students, hidden difficulties.
Critique of other solutions and application of metrics tool. Best results.

Novi sad, teachers, assignments



Novi Sad Professors	Nr of Students	Average Points Assgn 1	Average Points Assgn 2	Average Points Assgn 3	Average Points Assgn 4	Average Points Assgn 5	Average Points Assgn 6	Average Points Assgn 7	Total Points Assgn
2004	4	57,50%	50,00%	62,50%	75,00%	65,00%	87,50%	83,33%	67,74%
2005	11	62,00%	54,55%	61,82%	69,05%	72,73%	89,77%	75,00%	68,73%
2006	7	71,43%	44,64%	81,43%	57,14%	52,86%		83,33%	64,29%
2007	15	53,33%	50,63%	72,00%	41,67%	72,70%	59,00%	72,73%	59,30%
2008	12	70,00%	70,88%	73,30%	44,42%	40,00%	75,00%	83,33%	63,02%
Average		62,85%	54,18%	70,21%	57,46%	60,66%	77,82%	79,54%	64,62%

Results comparable to those of informatics, but worse
Some assignments (in average) failed

Tirana, masters, assignments



	Nr of Students	Average Points Assgn 1	Average Points Assgn 2	Average Points Assgn 5	Average Points Assgn 7	Total Points Assgn
Tirana 2007	17	78,24%	80,59%	80,00%	98,24%	84,26%
Tirana 2008	15	69,30%	74,00%	76,70%	95,30%	78,83%
Tirana 2008 II	15	66,00%	78,70%	80,70%	92,70%	79,53%
Average		71,18%	77,76%	79,13%	95,41%	80,87%

Results comparable to those of Novi Sad, better (masters) but not much (crash course, English language)

II year slightly better than the I year

Skopje, bachelors, assignments



Skopje		Nr of Students	Average Points Assgn 1	Average Points Assgn 2	Average Points Assgn 3	Average Points Assgn 4	Average Points Assgn 5	Average Points Assgn 7	Total Points Assgn
2007	III year	46	46,34%	88,46%	97,14%	51,27%			66,90%
	IV year	75	61,44%	96,72%	89,74%	67,94%			76,76%
2008	III year	51	55,49%	53,33%	73,92%	35,53%	56,74%	88%	51,65%
	IV year	118	58,36%	72,89%	74,57%	30,35%	43,01%	12,22%	48,86%
	IV year	80	61,54%	71,63%	83,26%	57,40%	92,21%	82,22%	74,71%

Non Bologna students (better also here)

IV year studies better than the III year studies

Percentage lower here than in Novi Sad (as before). Why? (eralier: inexperience of the assistant. Now?)

Berlin, bachelors, assignments



Berlin	Nr of Students	Average Points Assgn 1	Average Points Assgn 2	Average Points Assgn 3	Average Points Assgn 4	Average Points Assgn 5	Average Points Assgn 7	Total Points Assgn
2003	52	88,57%	78,41%	75,00%	72,27%	65,00%	86,73%	77,14%
2005	85	86,88%	80,63%	86,25%	74,67%	75,63%	78,00%	80,34%
2007	64	87,14%	87,62%	87,62%	87,62%	81,00%	91,90%	87,15%
Average		87,53%	82,22%	82,96%	78,19%	73,88%	85,54%	81,54%

Big differences. Change of assistant?



Lower percentage for formal specifications (than NS and TI). Why?

Novi Sad, informatics, tests



Skopje		Nr of Students	Average Points Test 1	Average Points Test 2	Average Points Test 3	Total Points Tests	Total Points Tests
2007	III year	46	45,59%	56,70%	54,85%	52,38%	60,33%
	IV year	75	59,98%	67,63%	66,60%	64,74%	59,67%
2008	III year	51	50,38%	52,20%	56,90%	52,90%	58,11%
	IV year	118	62,66%	64,07%	61,10%	62,61%	63,36%
Average			56,83%	58,15%	58,53%	57,75%	

Skopje. Worse results, Bologna performed better, III y. studies worse

Tirana. Worse results (crash course, language)

Novi Sad. Bologna. Lower here, as well

Tests, all



	Test 1	Test 2	Test 3	Test 4	All tests
Novi Sad CS	68,29%	66,53%	60,47%	58,16%	63,36%
Novi Sad Prof	54,37%	52,91%	47,35%	43,54%	49,54%
Tirana	63,30%		52,92%		58,11%
Skopje III year	47,99%	54,45%	55,88%		52,77%
Skopje IV year	60,03%	63,30%	61,76%		61,70%
Average	58,80%	59,30%	55,68%	50,85%	57,10%

Marks



Course	Final mark
NS CS 2004	8,24
NS CS 2005	7,94
NS CS 2006	8,24
NS CS 2007	8,29
NS CS 2008	7,63
NS Prof 2004	6,50
NS Prof 2005	6,00
NS Prof 2006	7,25
NS Prof 2007	6,50
NS Prof 2008	7,00
Tirana 2007	8,24
Tirana 2008 I	8,40
Tirana 2008 II	8,20
Skopje 2007 III	8,11
Skopje 2007 IV	8,31
Skopje 2008 III	6,56
Skopje 2008 IV	6,82
Skopje 2008 IV - old	7,64

Conclusions, now



- No matter what you do the average will be around 8.20
☺
- Seriously:
 - Student's experience matters – better achievements by 'older' students (SE is such kind of field)
 - Lecturers' experience matters (Novi Sad, Skopje) although we had the same criteria (SE is such kind of field where there is no 'correct solution')
 - Otherwise, problems of SE are universal.
 - **Bologna students are worse? (in Novi Sad consistently, in Skopje, partly)**