

Through industry collaboration toward new curricula at FINKI

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"Ss. Cyril and Methodius" University in Skopje
FACULTY OF COMPUTER
SCIENCE AND ENGINEERING

Agenda

- Short history of FINKI (FCSE)@UKIM
- Built in industry collaboration
- MoU and Friends of FINKI
- Invited lectures
- Complete or partial lab delivery
- Lab sponsorship
- ILT
- Joint student projects
- Survey toward the new curricula
- New curricula



FCSE@UKIM

- Established in 2011 by merging of the ICT departments from the Faculty of Electrical Engineering and Faculty of Natural Science and Mathematics
 - More than 35 years of teaching and research in ICT
- Part of the University Ss Cyril and Methodius in Skopje
- Largest technical faculty in the country
 - 4000+ students
 - From 600+ to 900+ new enrolment on the undergraduate, 70 in postgraduate every year
- Staff of 55+ PhDs in ICT, ~10 young researchers and assistants



Built in industry collaboration

- Close collaboration with the industry was one of the pillars of the new faculty
- Goal: overcome the constant comments from the industry that we deliver theoreticians, not practitioners
- Hear the voice of the industry



MoUs and Friends of FINKI

- Immediately launched a campaign for signing MoU with the companies
 - Mutual benefit
 - Legal basis for student internship
 - Friends could announce their job and internship positions on the FINKI web site and gain access to large base of potential employees
 - A dedicated page on the web site with logos and links to the friend companies
- Up to now, ~350 MoUs signed



Invited lectures from the industry

- An established practice to have at least one invited lecture per course
- Excellent feedback from both the students and the lecturers
 - Some courses are so popular that we have to turn down some companies or postpone them for the next school year



Partial lab delivery

- Some invited lectures insist on having a full package, meaning a lecture followed by some exercises and labs
- Solve specific small problems
- Introduce the students to some specific technology
- Demonstrate corporate approach toward problem solving
- Complement the academic approach



Full lab coverage

- In several examples, companies offered full lab curricula
- Provided technology and personnel
- Applicable in the courses that have specific requirements for the labs
 - IoT, networking, ...
- FINKI assistants giving full support to the lecturers from the companies



Lab sponsorship

- A program offering the companies to “brand” some labs or lecture halls
- Increase their visibility among the students population
- Companies provide some financial or other technical support to the faculty
- Up to now, 6 labs and 2 classrooms branded.



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FINKI ILT

- Industry Learn and Talk
- Initiative that started last year to enable a platform for knowledge sharing between the the ICT companies
- FINKI acts as a neutral place for cross company collaboration
- Several events so far, open to the students



Joint industry student projects

- Both previous and new study programs include credits for team projects
- Preferred realization of the team project is under company mentorship
- Many diploma works have been products of successful industrial and academic co-mentorship



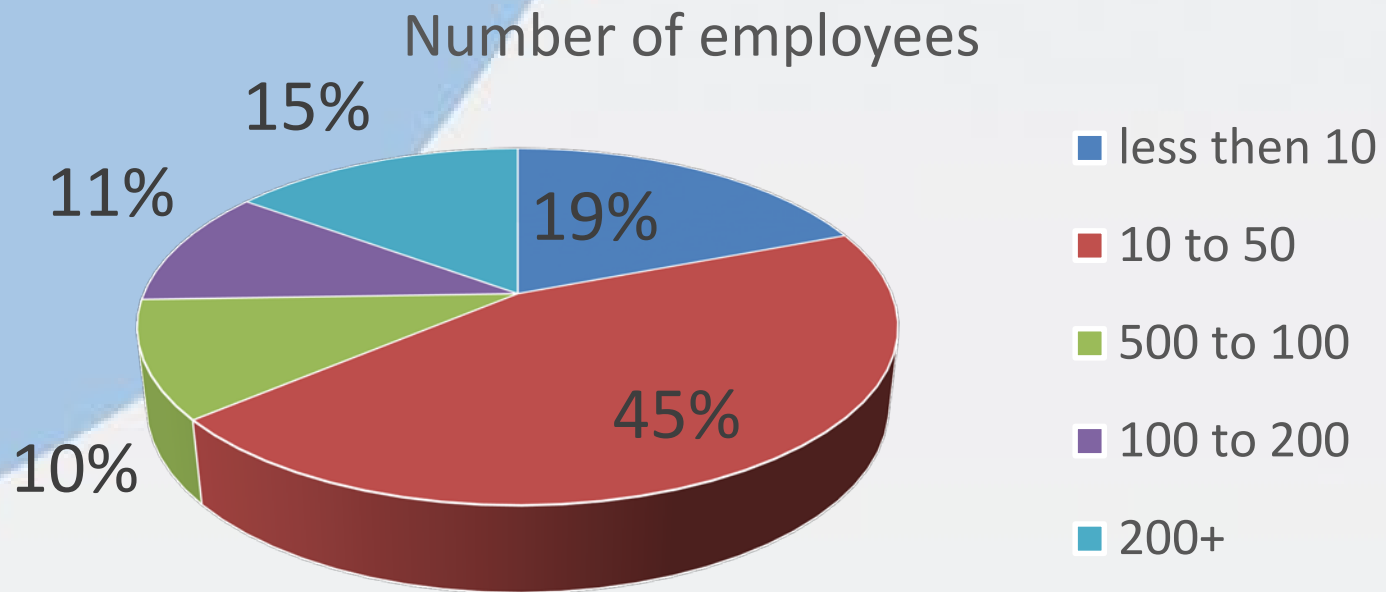
Toward the new curricula

- The process of improving and modernizing the curricula at the faculty started more than 2 years ago
- Among the important activities in this process was a survey of the industry needs and plans
- The survey was distributed to the friends of FINKI companies and quite satisfactory feedback was received



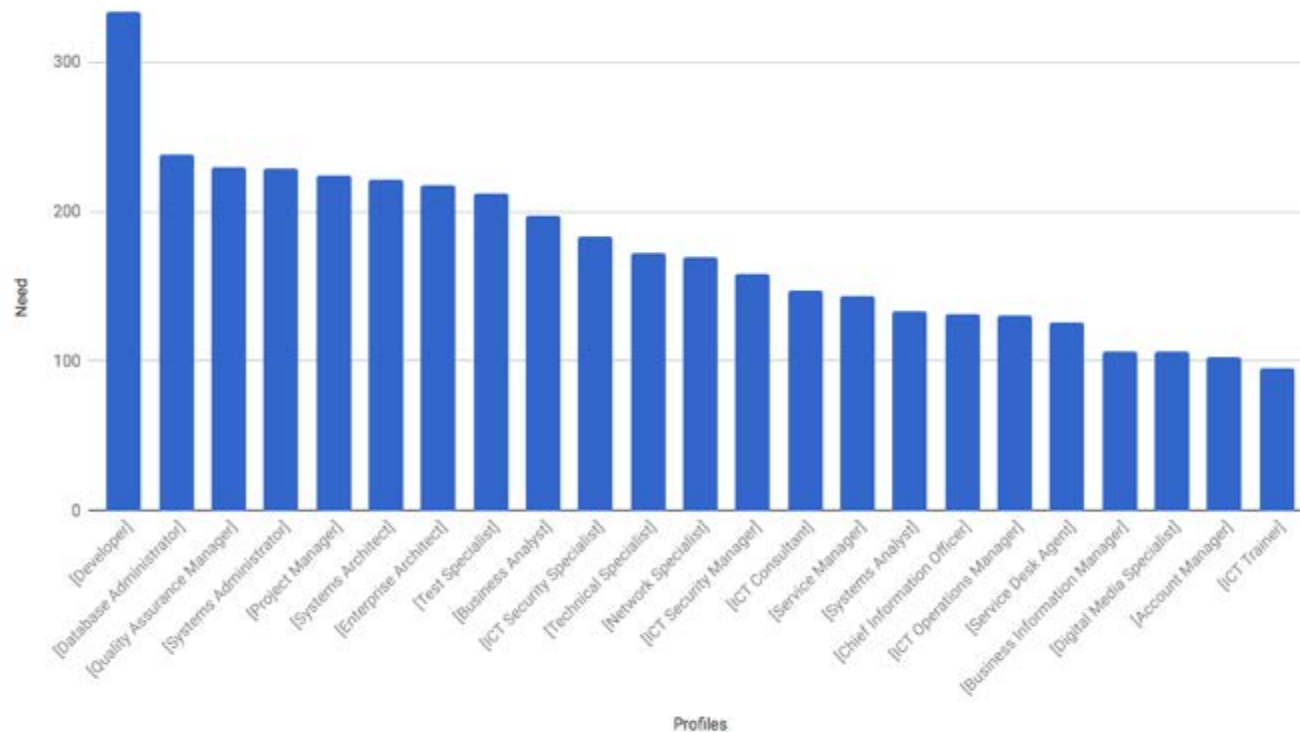
Companies structure

- Dominant software development companies
- Followed by system integration, services and telecommunications



Needs vs profiles

<ftp://ftp.cen.eu/CEN/Sectors/List/ICT/CWAs/CWA%2016458.pdf>



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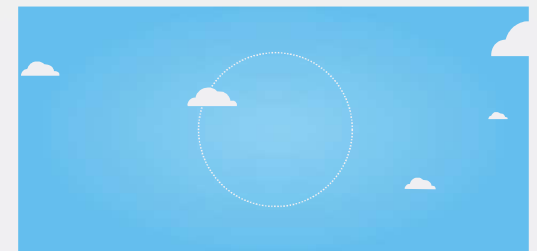
New curricula

- 6 study programs
- 1 traditional: computer education (primary and high school computer science teachers)
- 5 new study programs
 - 1 offered in English
 - 2 more general, with bigger quotas
 - 3 more specific and targeted
 - Offering 3 or 4 years of study



Software engineering and information systems

- Compatible with the latest ACM recommendations
- General track, offering specialization through electives in many SE and IS areas
- Offered also in English



Applications of IT

- Applied IT
- Less theory, more practice
- Profiles include
 - Development
 - IT support
- More soft skills



Computer engineering

- Hardware oriented
- Classical engineering
- Profiles include
 - IoT
 - Embedded systems

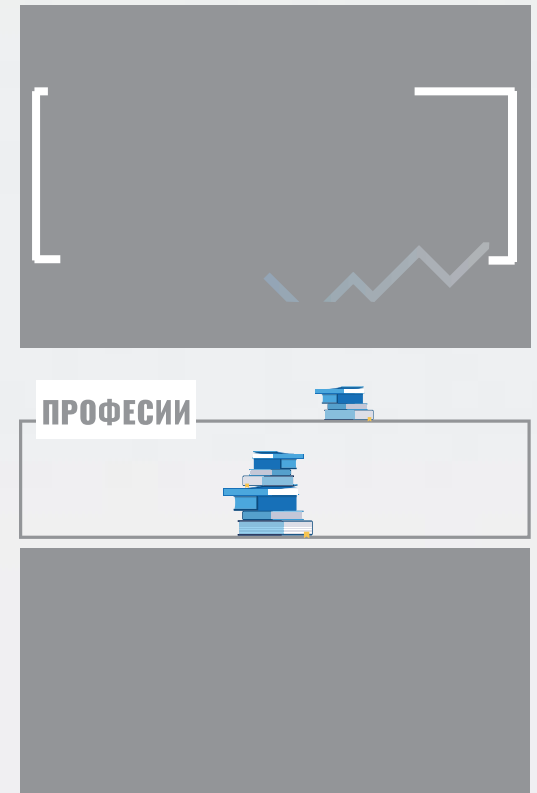


Embedded systems developer
Internet of Things expert
Systems Architect



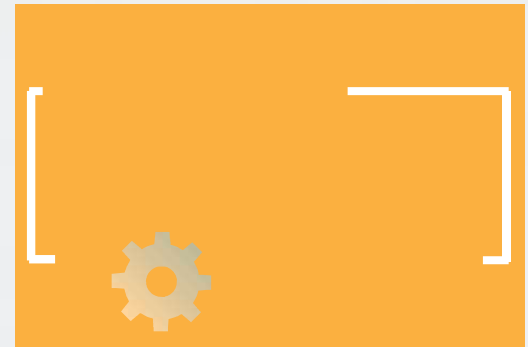
Internet, networks and security

- IT communications
- Profiles include
 - System administration
 - Cyber security
 - Network admins
 - Information officers



Computer science

- Theoretical foundations
- Data science
- Problem solving



ПРОФЕСИИ

*Computer Scientist
System Analyst*

*Data Science Professional
Data Infrastructure Engineer*



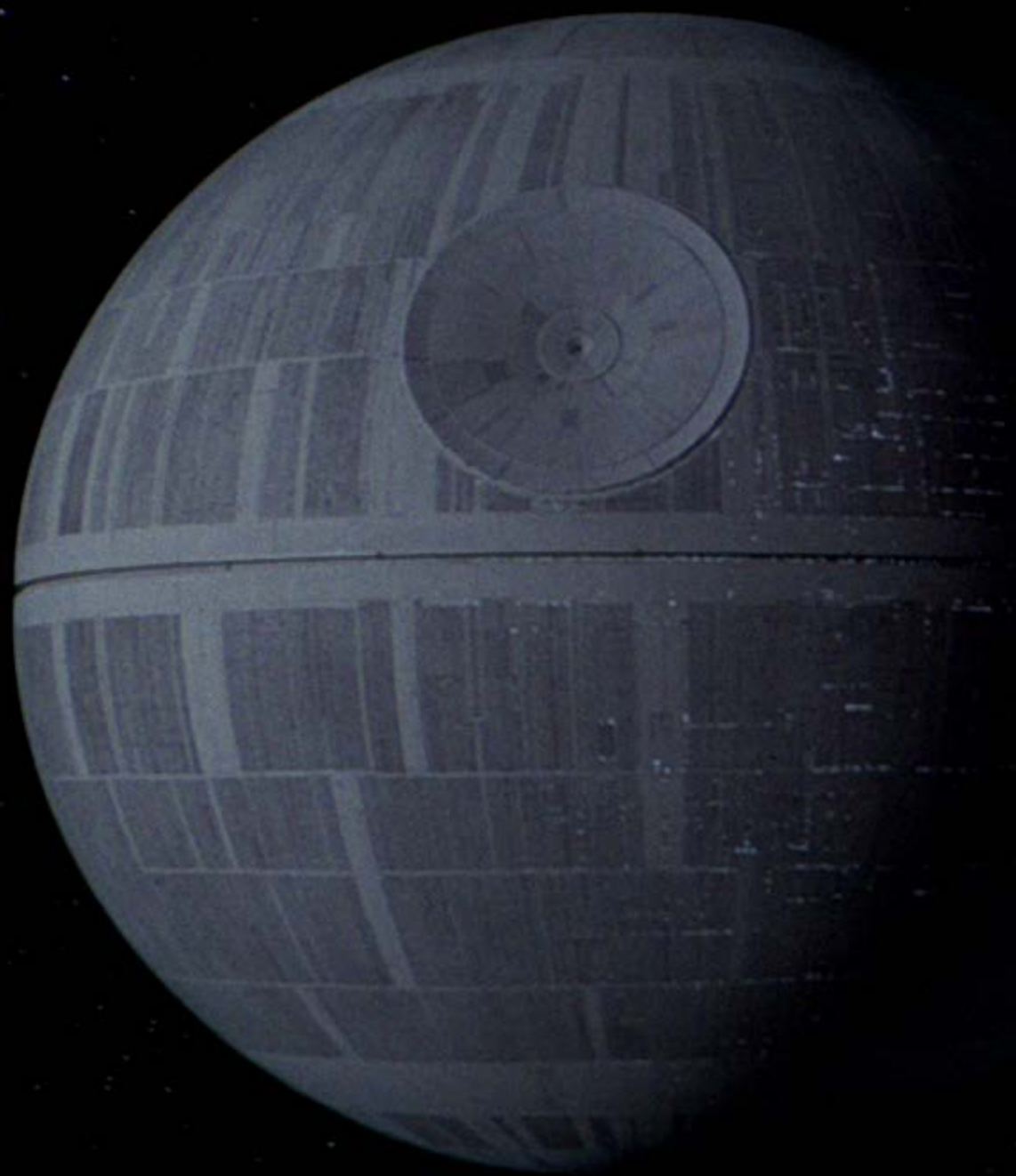
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Cross-specialization

- Electives allow cross specialization
- No strict boundaries
- Cross discipline expertise



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Thanks for your attention

Questions, comments, ...?



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