Through industry collaboration toward new curricula at FINKI

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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

http://finki.ukim.mk/
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.
FINKI ILT

- Industry Learn and Talk
- Initiative that started last year to enable a platform for knowledge sharing between 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

Number of employees

- 45%: 10 to 50 employees
- 19%: less than 10 employees
- 15%: 100 to 200 employees
- 11%: 500 to 100 employees
- 10%: 200+ employees
Needs vs profiles

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
Internet, networks and security

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

• Theoretical foundations
• Data science
• Problem solving
Cross-specialization

• Electives allow cross specialization
• No strict boundaries
• Cross discipline expertise
Thanks for your attention

Questions, comments, ...?