Industry Mentor Scheme

Orientation

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A bit out us

Suzanne Embury, Senior Lecturer (course leader)

Caroline Jay, Lecturer

Markel Vigo, Lecturer

Duncan Hull, Lecturer

Rob Haines, Software engineer

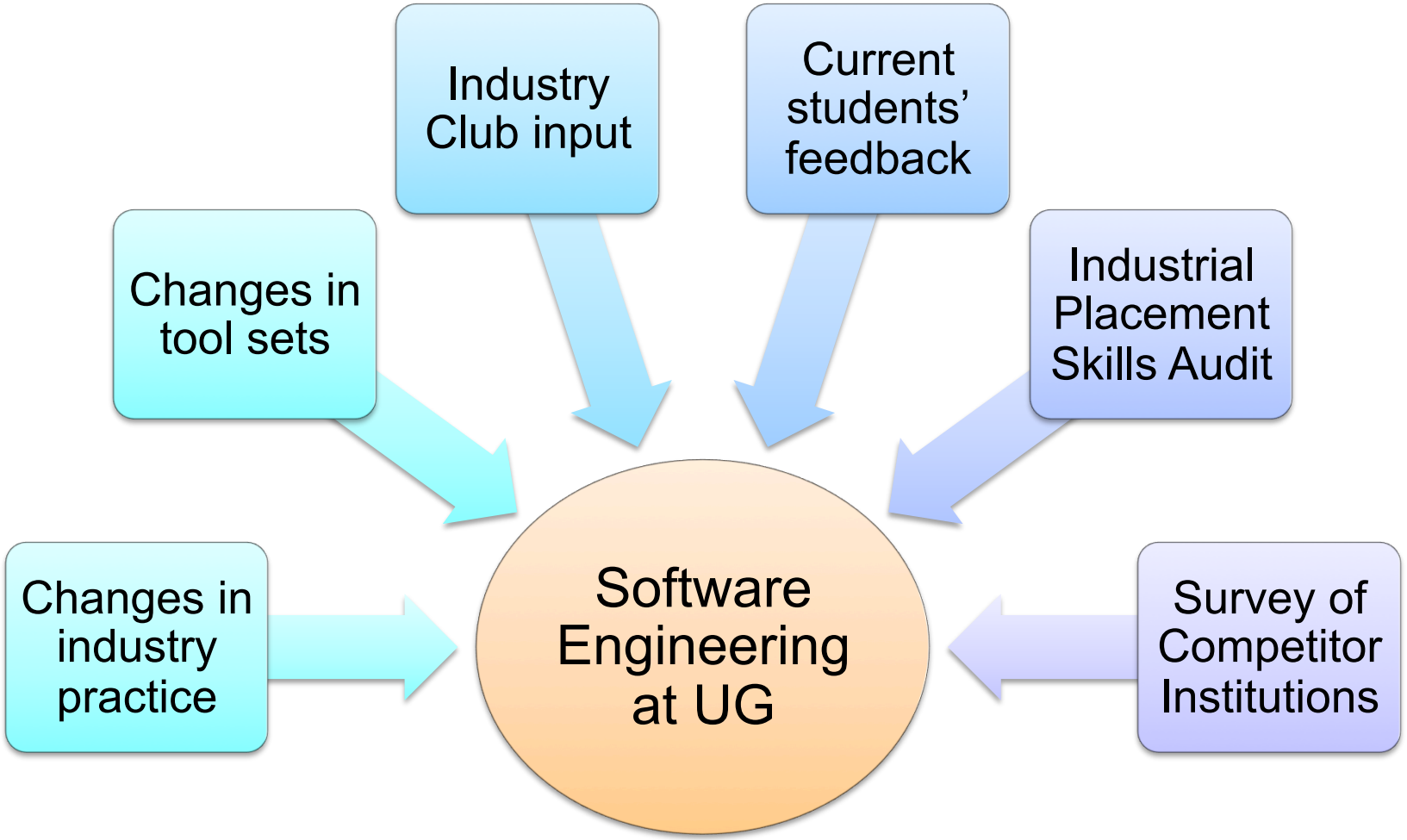
Our students

- ~200 in each academic year studying Computer Science
- Typical A-level offer is AAA (including Maths with significant Pure Maths component)
- Not *necessarily* any programming experience on arrival in year one

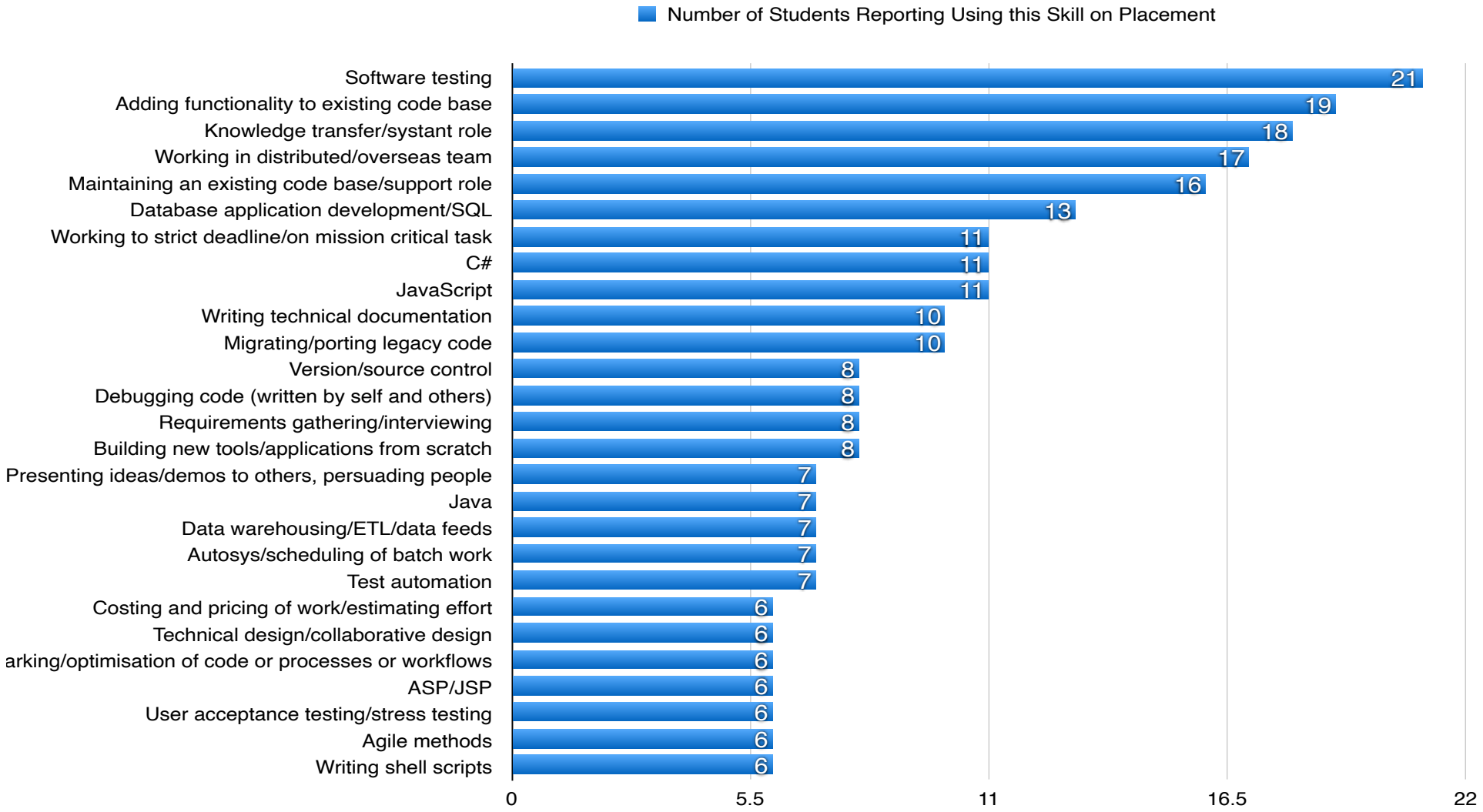
Software Engineering at UG

	Semester 1	Semester 2
Year 1	… Java programming … … Team project (web + DB) …	
Year 2	Year-long compulsory course unit (software engineering)	
Year 3	3 elective course units (agile s/w engineering; user experience; s/w engineering in a connected world)	

Drivers for Change



Skills Audit from Placement Students



Survey of Competitor Institutions

- Often not much public information

- Some examples of innovative modern practice
  - e.g. Sheffield, Royal Holloway, UCL

- Lots of UML
- Focus on OO programming/design

- Lack of coverage of modern technical practices
  - And some not so modern ones…

Software Engineering in the Lab

Typically:

- Small systems (few hundred lines)
- Fixed requirements
- Mandatory requirements
- Code built from scratch…
- … on top of well-behaved black-box components
- Testing considered optional

- Will never actually be used

Online Exams

Bus Company Rostering

Software Engineering in the Wild

- Typically
  - Very large systems
  - Uncertain and changing requirements
  - Need to make value judgments about what to deliver
  - Adding functionality to an existing code base
  - Using legacy components/data/technologies
  - Testing essential

  - Must deliver value
  - Must be maintainable in the long term

This Semester

Based around a large open source system

- Java
- Multi-user
- Multithreaded
- Client-server architecture
- TCP oriented network protocol
- mySQL and H2 persistence engines
- Open systems architecture designed for modification
- Complex business logic/business rules

Stendhal Multi-Player Adventure Game

https://stendhalgame.org/ Massively multiplayer online role-playing game (MMPORG)

Our Students Must

- Work in teams of 6 to:
  - Fix bugs
  - Add smallish new features
  - Re-architect a part of the system to add maintainability
- Use code quality and test coverage tools
- Use CI server
- Use a simple Git workflow
- Use code review techniques
- Choose a subset of the requirements

Teaching Methods

- One 2-hours workshop per week
  - Hands on
- 2 hours of scheduled “group working” time
- No face-to-face lectures
  - Selected lecture material provided as vodcasts for students to watch in their own time
- Each team has an industry mentor working with them through the year.
- (semster 2 only for now, semester 1 AND 2 later)

Why a mentoring scheme?

- Increase the industrial relevance of the course
- Provide students with an opportunity to discuss
  - The realities of being a software engineer
  - Typical tools and techniques used by software teams
  - The current jobs market
  - The range of career options available
  - How they might continue to succeed in their careers
  - The mentor's own personal experiences
  - Anything you think we've missed!
- Tap into all your experience

What's in it for you?

- Provide input into training the next generation
- Gain exposure to a cohort of potential recruits
  - Build relationships with students
  - See how teams and individuals work
  - Improve the quality of the entire cohort
  - Help embed good software engineering practices early
  - Advertise your company/jobs/graduate scheme

Dos and don’ts

- Please do
  - Talk to students about how they are approaching the lab coursework
  - Talk about how you might approach the coursework in industry
  - Talk about general processes and tools
  - Talk about your experiences and areas of interest
- Please don’t
  - Get hijacked into actually working on their lab coursework
  - Worry about “shy” students – we have ice breakers
  - Worry about the syllabus

How it will work

- http://cs-mentoring.eventbrite.co.uk

  ~40 mentors

  drop out?

  first: week 4: greeted by ambassador

  second: week 8: either here or on-site

  third: (optional) week 11 showcase

- Mentoring guide

Who has signed up so far?

In no particular order:

- BBC, IBM, ARM Holdings
- Imagination Technology
- NCC Group, Avecto, Autotrader
- Data Centred, Barclays, RentalCars
- AppSense, CDL, Sage
- LateRooms, Web Applications UK, On The Beach
- (everyone here today)

- Northern Powerhouse / Southern Powerhouse?

Over to you

- Three break-out groups

- What you want from the mentoring scheme
  - Strengths
  - Weaknesses
- Any other issues we haven't thought of or covered