**Software Engineering Tutor**

**Role Description:**

* Software engineering tutor
* Job is to deliver course content and ensure that students understand and can use information delivered
* Also a software developer
  + Own knowledge needs to be updated to teach to students
* Administration work
  + Important to do a register for each class
    - Either pass a sign in sheet around, or update on tribal
    - Tried to do it all automatically
      * Attendance database is run by tribal
      * Don’t allow an automatic batch update
    - Tried RFID card scanning
      * Project completed and worked well
        + Can’t be updated into tribal
    - Originally just got students to write their names on paper
      * Too hard to pick out names
    - Looked at facial recognition
      * Already have pictures on files from student ID
      * Would need permission from students to film the class
      * Would still need to manually update TRINBAL
    - Gave up and now uses a printed name list, with students signing by their name
      * Easier to recognise names
      * Hard as a non-native English speaker to read handwriting
* Software Engineering work:
  + Analysis and design
    - Can use software, or hand draw
    - Looked at how to reverse engineer diagrams from code
      * Use software to draw diagrams from code
  + Coding
    - Depends on what you are doing, and how you want to do it
    - In the olden days
      * Everything was developed slowly
      * Constant updating wasn’t needed
    - Now:
      * Things are changing rapidly
      * Need to keep updating and learning languages
    - Editors are needed to write code
      * Need to suggest an editor
      * Use to use notepad – worked OK
      * Graphical user interface is needed
        + Windows notepad needs a separate compiler and EXE file to run
      * Notepad++ is a better editing option
        + Easy to use
      * Visual Studio – Very powerful
        + Too powerful
        + Does too many things
        + Have to learn how to use it
    - Software is updated frequently
  + Teaches:
    - JavaScript, Python, Java, C#
    - Have to update knowledge base on all languages each year as they are updated
  + Some web page java script will look different in different browsers – there is no standard
  + Industry preference dictates what is taught
* Testing:
  + Can do manually with own software – run it and see if it works
  + Can also use testing suites
  + Test code is written based on software
* Deployment:
  + Need to think about when and how
  + Virtual machines
    - Too much memory is required just to run software
  + Looking at Docker
    - Ike a sandbox environment
    - Easily create and destroy programs
    - Don’t have access to Docker on the Ara network
    - Trying to work with Tech lab to run Docker on their network in the future
* Mobile Technology:
  + Industry has different standards because they can install/configure how they want
  + As software developers we are constrained by the rights on the Ara network
    - Can’t do certain things
      * I.e. Android Studio
    - Because they don’t have the rights required to create a virtual machine
    - There are security reasons behind this, but it’s annoying
* Need to ensure that the latest version of anything is being taught
  + in the real world would be using slightly older, stable versions
  + Latest versions may not be fully stable
  + Stable versions will be missing new features

**Questions:**

**What tools do you use to keep up to date?**

* Follow blogs
* Search the internet
* Look at official website
* Visual Studio – opening page shows updates
* Always talking to students and colleagues to see what the current standards are
* If lots of people are doing something it should be added to the teaching
* i.e.
  + Used to teach Jade
    - Now teach JavaScript
    - Changed because even students doing projects at jade were not using Jade as a coding language
  + Web applications are popular, so JavaScript is now taught
    - More multipurpose than Jade
    - Took the fundamental knowledge from the PR280 JS course and put it into SE101 and changed PR280 to make it concentrate on frameworks, not the language
* Need to prepare students for the job market, so it is important to teach what is popular.