**ID: MI02\_M\_ComApps**

**REC023\_M\_N**

I would you like to introduce yourself as the lecturer in Computer Application module

MI02 yes certainly. I have a lecturer in this module about three years I think. So, I was also a postgraduate on that module beforehand. So, this the Computer Application module on the foundation year engineering, sort of prerequisite course. Course that people do to qualify for engineering subjects at degree level

I so, it’s a core module, so they have to pass?

MI02 yeah, they have to pass to get through. It’s slightly strange because it is combined in term of the mark, the percentages is combined with some other marks of other pieces of course work, we make up reasonably a big proportion of the course work marks, because we don’t have any exams on our course work.

I so, how about your experience teaching in the course, in the foundation year?

MI02 so, this is the only module I teach in the foundation year, so, yeah. My only contact with the foundation year is through this module, Computer Applications

I Computer Applications is compulsory for all students like the EE or the EP, you know for the international students…

MI02 as far as I’m aware this is compulsory for everyone. As you say there is an English pathway so students who’ve weaker English skills have to do English lessons and that’s in as you say probably is not a replacement of Engineering Principles that’s quite a core, but there is another engineering module

I I think EE and EP are the optional

MI02 ah! Okay. That make sense

I so, in terms of the students, you know every year we’ve different students with different profiles, so when comes to Computer Application how important are critical thinking skills, you think?

MI02 how could you define by critical skills?

I it’s up to you to…

MI02 I think it’s quite important especially in terms of some of the digital literacy skills that we teach towards the start of the course. In terms of that we get them to research different source of information, make decision in terms of which is good or bad. We follow that, we sort of introduce that at the beginning, primarily is a way of starting to develop that critical skills, because you do need them while you start learning the technical programming skills that we teach in the sort of the second part of the course. Because you need to be able to research answers, find out about the technical skills that you need for the, to solve the problem that you’re trying to solve. But, the problem is when do search when you do web searches for this sort of information you get lot of different answers, and often there are different ways to solve the same problems, there’s different route to the same problem. Sometimes there are divergent routes, and sometimes there are answers that’ll take you to the wrong directions, and it’s important to have the critical ability to quickly evaluate each of those options. So, this is one answer and people have said it is right, but for their particular case does it suit to the problem that I am having or does it suit better, or this one, or this one, or this one. And, being able to pick between those is important to have critical thinking skills

I right

MI02 and some people struggle with it in the foundation year. Sometimes people will think they are struggling with programming but, it’s their, they’re struggling to choose between which helped to follow

I sorry, just now you mentioned that earlier in the programme students are exposed literacy skills

MI02 digital literacy skills

I yeah, digital literacy skills, so that is in semester one or…

MI02 yeah, the very start, the first four weeks of the course

I right, and so, semester one they don’t have to do a project?

MI02 no. I can tell you about the structure of the project

I yeah, okay

MI02 so we did 4 weeks of digital literacies, and which is looking at how to use technology to support sort of learning in their things that we’re going to do later on. So, digital research skills, digital data analysis and about digital presentation, so how do you write something for the web, how do you present your results your answers in digital terms. Then we have 9 weeks or so, 9 or 10 weeks of Python programming, so this is problem solving through learning programming language, computer programming language. And then after that, that sort of rolls over a little bit into the second semester, so we’re just finishing up the Python skills when they are start their group projects. And then, for the, that must be about 11 or 12 weeks over semester two they spend the time doing the project that you’re seeing that probably the last five weeks of something like that

I so, you mentioned about digital presentation, is it individual or group presentation?

MI02 that is not stand up presentation by what I mean. It’s a written presentation work, and that is individual, so the group work is in the second semester

I the final, that’s a project yeah

MI02 yeah, during the project there are sort of 4, sorry 3 small deliverable which mostly their designed work in their programming work, and there’s a 4th deliverable which is a written report and they hand in, and, all of those are group work

I so, this project, the members in the group they choose by themselves or you…

MI02 no. we assigned the groups

I do you have any criteria?

MI02 yeah, we based on their work in the first semester. So, we based it on how they do in their first course work. So, I haven’t said this is their first coursework as well which is testing lot of those digital literacy skills

I that’s in semester one, yeah?

MI02 that’s in semester one, around November time they had that. So, based on that mark and the marks from programming labs. So, when they do programming they do sort of assessed exercises in the Python programming labs. We mark those, so the marks from both of those two feeding into how we group them for the second semester for the group project, and we typically try to balance the group so that there’ll a range abilities from the students who’ve done very well in semester one down to students who’s somehow haven’t engage at all in the first semester. So, even if they are still registered to take part, then they’ll be put in a team even if they’ve done poorly in the first semester, which means you get a quite a varied sets of strength within the group work

I so, just now you mentioned that some students struggle with the programming is not about programming is more about critical, which group of students do you think they struggle, largely?

MI02 It would be difficult to stereotype it. It's quite broad, it’s not just the critical thinking skills, and there are some logical thinking that some students don't’ always pick up as quickly as others. But, they are all aiming for engineering, they are all doing lots of Maths, so they should probably do okay from the logical side of the programming. Yeah, it’s easy to spot that some students, quite a few of students will struggle with the looking at the information and getting back when they do research about programming and almost floundered or be scared about the amount of information that come back and struggle to pick out what the, what would help them

I so, is it because of the language?

MI02 you international language?

I English as a language, technical language…

MI02 possibly. I think the big difference is some people come with having done with some computer programming before, and some coming without, and that across languages. So, I couldn’t say that it’s just international students struggle because we have some international students who’ve done lots of this technical work before and they’ll do very well on this course, so that’s is not necessary at all.

I yeah

MATURITY

MI02 there is sometimes, matured students struggle a little bit with it, I think. Because, partly it’s coming back to learning is difficult, and especially if they haven’t studied Maths for a long time then perhaps those underlining skills that helps support the programme the way of thinking the Mathematical way of thinking might be hindering them. But, I don’t have any figures to say that lots of mature students struggle. But, there a few mature students who definitely struggle

I especially those who’ve left the school long time ago and trying to catch up with the…

MI02 yes, certainly. Like almost certainly if they’ve not studied. If they not gone straight into studying engineering out of school, possibly because they didn’t do Maths at school. They weren’t keen on Maths early in their studies so, by the time they reach they suddenly realised they need it. It can be hard to learn that, that sort of thing

I another thing is that, when you spot some students having that problem with critical thinking skills what is the fundamental skills that you think that they lack which is stopping them or hindering them to really move on

MI02 if I’m honest it’s probably experience in the domain, so that the more experience that they get in their domain the quicker they can critically analyse something. The quicker they can say, oh no! That’s definitely not what I want because I’ve tried something like that before and I can spot the pattern. That’s probably the fundamental thing. There’s an element of confidence as well, like sometimes they weren’t necessarily be that sure of their, won’t be brave enough to try something and see what happens, almost fear of failure. I think if they’re more confident that they could critically compare these things then they might be able to, then they might be more confident of proceeding. It’s quite tricky one to pick up why it isn’t there

I umm. So, can I say that if they have experience in the computer application prior to coming here that would really help them to …

MI02 certainly yeah. Previous experience will help a lot

I so, doesn’t matter what type of education they had prior coming to the UK or

MI02 No. I could not notice any clear differences between the previous sorts of learning environment they have been in. If they got previous experience in that area that goes a long way

I okay. Because international students or the European students might have learnt the computer programing in their own language, so when they come here it got to be in English, so, does it affect at all? Or, it doesn’t?

MI02 I can’t be certain, I’m afraid. No, I haven’t notice that in particular, but, we don’t survey them to see at the beginning to see what are their experience was, so, I don’t have any real data towards what whether that has an impact. Certainly, something that we could do something next year, I’m sure we can survey them on the way end

I so, as I’ve mentioned earlier, every year students are different and they come with a different profiles, so does that influence your selection of skills you like to expose to the students. Like sometimes there are skills that you deliberately want to include because they lack or sometimes you feel they’re better off, so exclude some skills. Is there any ways that you’ve done this before?

MI02 to an extent, yeah actually. So, for the first four weeks we used to have teaching of how to use Microsoft word, teaching excel, teaching power points, or two weeks of excel actually. But, we felt it was too prescribed, this is how we use this software, how you do a particularly task in them. So, we tried to, we also found that students that were coming in with those skills already.

I umm

MI02 So, lots of who’ve studied IT, who just grown up using computer so much, and these basic how to use an application was supercilious, so many people already knew it and the few and very few find it through other means. We played with some of the digital literacy because it challenged them more thoughtful level. A little more about critical thinking and those were skills when making decisions about what to do on the web and what software to use and how to use it in particular situations

I so, when you realised that this office application is something they already know, so you try to replace it with digital literacy with more critical thinking is that what you’re saying?

MI02 yeah, it’s actually yeah

I so, how important is language for them to do well in this course?

MI02 which part of language? Language speaking or understanding?

I the whole concept of using the language in the course, it could be spoken, written, could be…

MI02 I feel it’s quite important. It is, the whole course is taught in English, and not having a strong understanding of it is can be hindrance. It’s quite a bit tricky to understand subject. It’s should not necessarily tight to language because it could be quite abstract, but it depends. The digital literacy isn’t so abstract, quite practical. So, understanding programming language can be quite abstract, so trying to model real world things in almost mathematical way. Because of that, it should transcend languages. But, the way we go from not understanding of it to try to help student to understand it is through English language. Because, it’s quite tricky to understand that abstract thought doing that in a second language. I imagine is quite tricky. I’m not sure, I’ve not tried learning programming in the second language, so, I don’t know for certain, but explaining those concepts in English is quite challenging. Try to understand them in your second language, amplifies the difficulties.

I so, when comes thinking, do you think it’s a thinking problem or language problem?

MI02 I don’t know. It’s a very deep psychological question that I don’t have a lot of knowledge about (laughs). From what I have having spoken to people who know multiple languages, I know at certain stages of language understanding you begin to think in a language. Often to a certain stage people would think in their native language and translate into the secondary language. At some point they begin to think in the secondary language sort of suggest to me that at certain levels of language learning then learning in the other language will be almost like learning in your native language. I think with the level of qualifications for the foundation year for language qualification I imagine lot of people aren’t at the stage of thinking in their secondary language. I think there’ll be lot of hearing English and quickly translating into their native tongue. I imagine that might make learning slower, both reading books must be a lot slower lot reading text on the screen. When we provide digital resources must be much slower and listening lectures I can only imagine students miss parts of it where they still try to listen and understand to the previous parts

I in the foundation year, there’s a student with disability, so how do you cater for him? And he’s involve in the project as well?

MI02 yes, he’s involve in the project. We try to group (…) I’m just trying to think if we made a specific change this time. I’m not sure what we did this week but we try to make sure the groups are balance in terms of both ability and personality. We try to make sure groups have a welcoming elements to them to students. Again, we try to make everything accessible, so we try not to have anything impossible to for students to cope just so that we don’t have to make any changes for the particular students. This particular students I believe lip reads so we have encouraged him to sit in a position where it is easy to lip read and we’ve guided to where that would be. But, in the terms of changing the content or anything like that there’s not been, we’ve haven’t feel right needed to make any specific changes. I think it’s already been appropriately adapted already.

I so, for you what is critical thinking skills? Because different field, even different module we used it differently?

MI02 certainly

I yours is computer application, so what are the essential critical thinking skills…

MI02 critical thinking as being able to evaluate various things against various criteria in a way that helps you make a decision and part of that is determining what that those criteria are, so part of that is deciding how do I evaluate any of my specific instances in a fair way in a repeated way. So, how do I compare choosing a resource in one place to choosing a resource to one place

I so, you mentioned about repeatable way

MI02 it’s about consistency. So, if I decided to follow a particular piece of advice that I found when I’m searching for help or when I’m a reading a text book, if I did that again in a different a text book would I get the same sort of help, or my decision in my way of choosing which one I believe or which one to follow in consistent and in which case and why it vary each time look for resources. So, I think the place is where it typically apply in our courses finding help around resources and finding help for learning. So, to the example to practise programming skills. So, sort of enforce critical thinking in evaluating project at the end of the course and also evaluating a piece of information when researching at the beginning for the course

I right. Just now you mentioned finding help in programming, does that involve PGTA as well?

MI02 a little bit, yeah. So, the PGTA they we encouraged students to find help elsewhere. So, to use text book, to use the web as a first resource and use postgraduate as a secondary source.

I okay

MI02 Partly that’s to balance the amount of time that each student get with the postgraduate things like that. Primarily is to, sort of encourage students with their evaluative, their critical thinking skills every time they need help. So, rather than immediately becoming having a question and getting start going straight to postgraduate to find out the answer pause and look for answers, address all the places where you might have answers already decide whether any of them is appropriate or useful. If they’re not then finally go to the postgraduate

I right. Thank you.

MI02 is that useful (laughs)

I yeah. It is