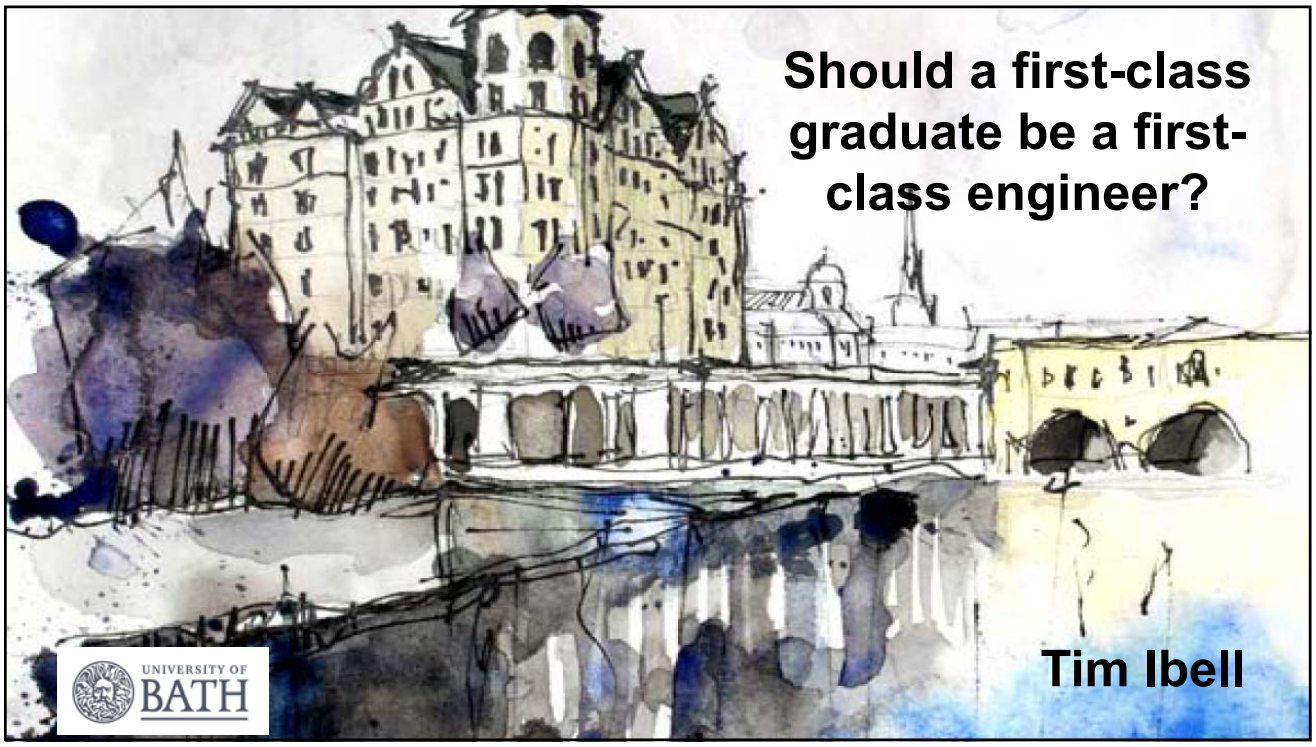

Should a first-class graduate be a first-class engineer?
UNIVERSITY OF BATH
Tim Ibell

YES

Some sums:

A typical civil engineering department with 25 academics

And with 100 students per year

Needs to replace one academic per year..?

So, 1% of graduates need to become academics

And the other 99%?

We must stop trying to make mini-mes

We must start trying to make engineers

So, what is the essence of engineering education?

The outcome

Student A and student B are identical twins
Student A joins an engineering company at age 18
Student B goes to university
Four years later, what head start on A should B have?
And twenty years later?
We need to articulate this and then **deliver** this

The legacy of education, to me, is

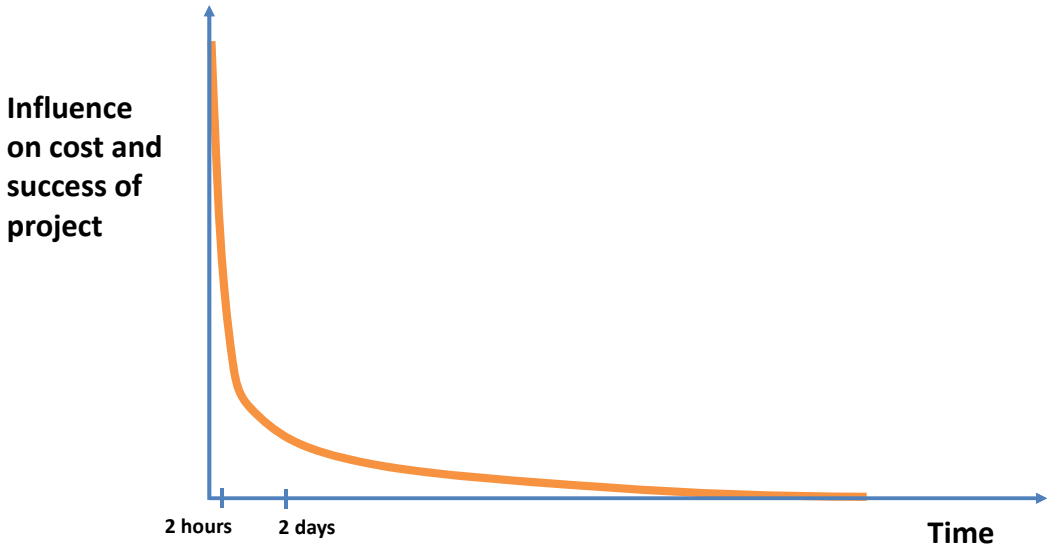
Knowing that asking the right question is far, far more important than being able to answer it

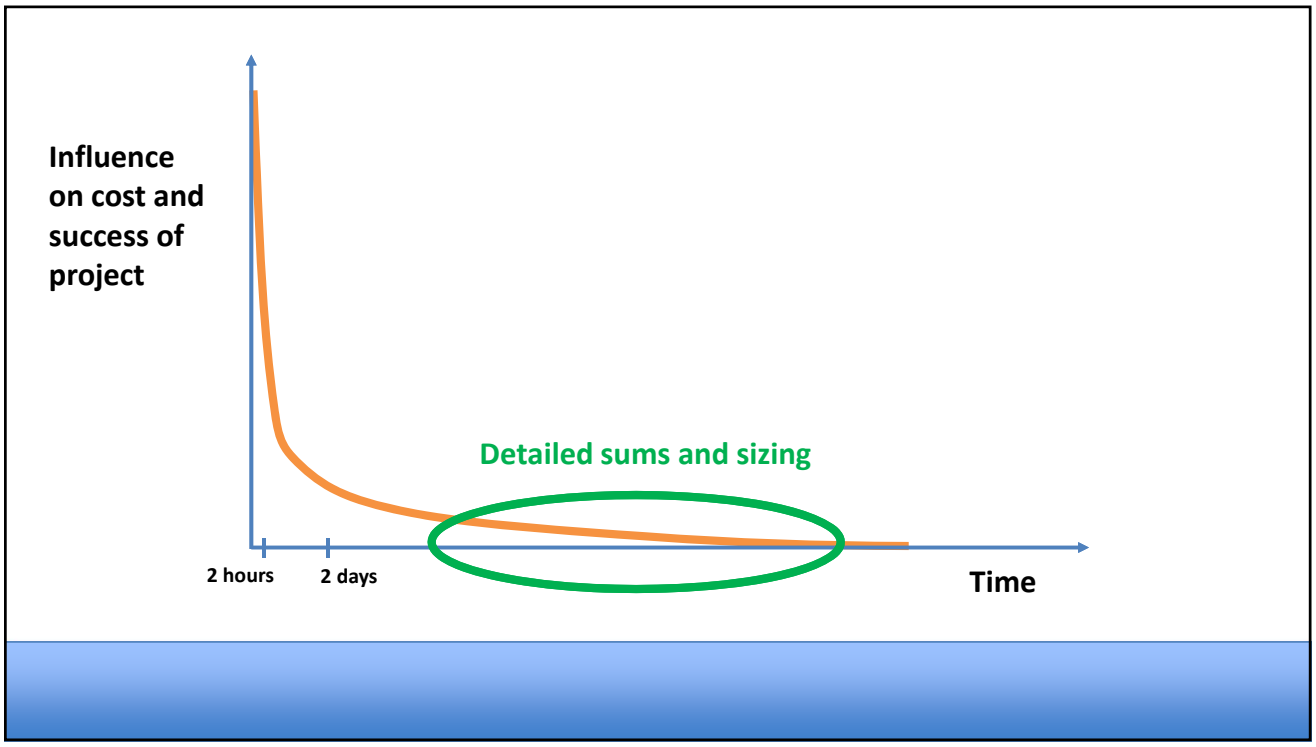
So, should we assess our students for the quality of their questions, rather than merely for the quality of their answers?

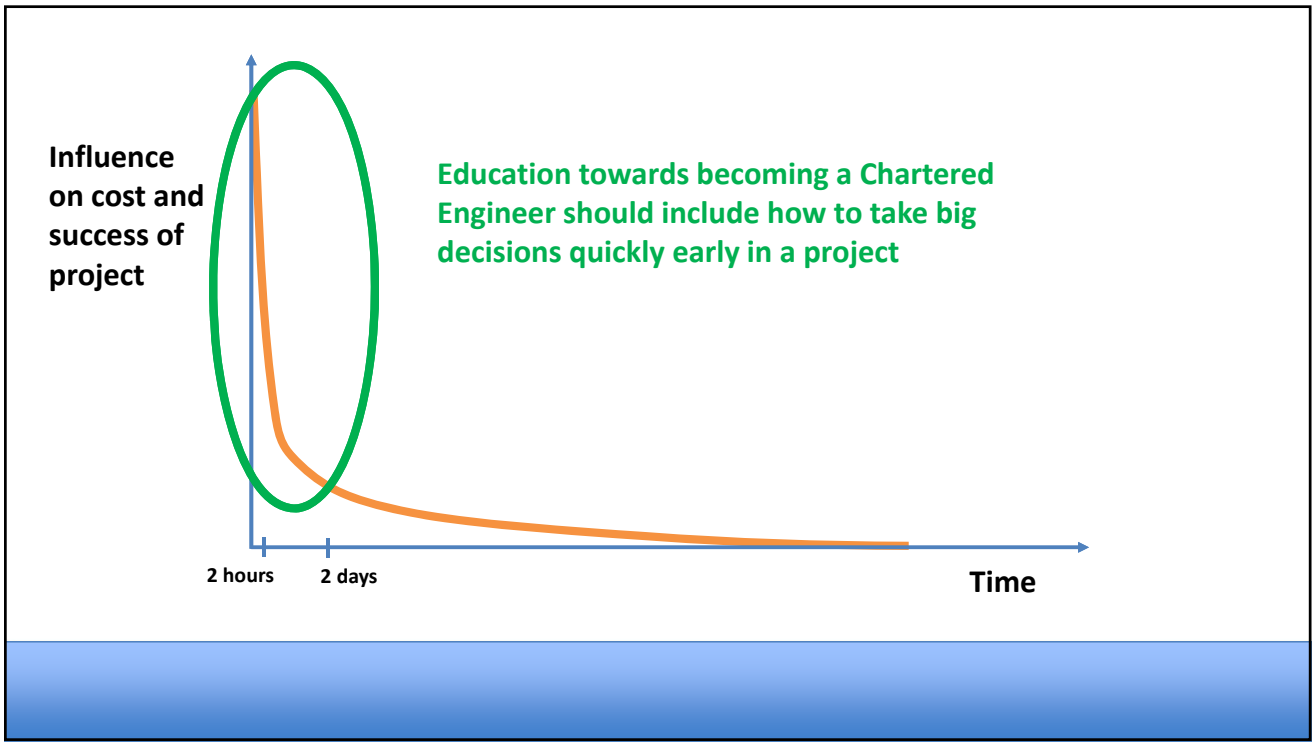
YES

How?

Through design projects
(certainly not through exams)




Influence on cost and success of project
Detailed sums and sizing
2 hours
2 days
Time


Influence on cost and success of project
Education towards becoming a Chartered Engineer should include how to take big decisions quickly early in a project
2 hours
2 days
Time

So, why do we have exams at all?

Efficient, systematic approach to check basic understanding

So, why do we have exams at all?

Efficient, systematic approach to check basic understanding

Which would be fine were it true..

But the reality is..

We have exams because we think that our students knowing a few answers to someone else's questions is more important than being able to ask the right questions in the first place

And so exams become the dominant piece

And then we lose the plot of what it is to be an engineer – to ask the right questions

A University is not a place to learn about engineering

A University is a place to learn how to be an engineer

So, how might we relegate exams to be an

"Efficient, systematic approach to check basic understanding"?

And how might we elevate design projects so that

"A University is a place to learn how to be an engineer"?

Workshop

Questions

1. Is it feasible to reconfigure degree classification processes to ensure that the outcome is based on engineering design ability?
2. If so, to what extent do you think we should go in relegating exams to a threshold check?
3. Should exam results still count towards degree outcomes?
4. How might JBM help to lead such a cultural change?
5. Would the job of an academic change? Positively or negatively?
6. Are there any industry-related unintended consequences of elevating design ability and relegating exam ability?