

03/07/2014

Joanna Deko
Mathematics Subject Specialist
OCR

Dear Jo

Level 3 Certificates in Quantitative Problem Solving and Quantitative Reasoning (MEI)

MEI is pleased to have been involved in developing the Level 3 Certificates in Quantitative Problem Solving and Quantitative Reasoning with OCR. Our research and development work, and our feedback from centres indicate that these qualifications will meet the needs of a wide range of students who have already succeeded with GCSE Mathematics and for whom AS/A level Mathematics is not suitable.

These qualifications will enable students to develop skills and confidence in solving problems in a wide range of contexts where mathematical and statistical understanding is important for successful progression to further study and work.

Initiatives in Higher Education, such as the Q-Step programme and the British Academy quantitative skills programme, highlight the need to strengthen the quantitative skills of future undergraduates. Our research and development work has confirmed that such skills are also highly regarded by employers.

The structure of the qualifications, with the common component, 'Introduction to Quantitative Reasoning', will allow schools and colleges to ensure that their students are able to develop a common core of knowledge and understanding and to extend it further in ways that best meet their needs and aspirations.

The Level 3 Certificate in Quantitative Problem Solving will be particularly suitable for students whose future work and study require them to understand and use statistical methods.

The Level 3 Certificate in Quantitative Reasoning will enable students to acquire a strong quantitative sense, allowing them to understand, analyse and question quantitative information with confidence.

Both qualifications will support future employment and effective citizenship, and both can help catalyse a change of culture to a population that understands the value of mathematics and is comfortable applying mathematics to help address real problems.



Charlie Stripp, Chief Executive

2 July 2014

Dear Mr Ramsay

Re: Level 3 Certificate in Quantitative Reasoning and Level 3 Certificate in Quantitative Problem Solving

The application of mathematical tools to perform engineering tasks and solve engineering problems is a fundamental competence that all technicians must possess. The provision of the essential underpinning knowledge upon which competence is built often falls upon employers to deliver before a new recruit can become a contributing member of the technical workforce. The two new qualifications have the potential of better preparing young people for their engineering apprenticeships or for their Technicians roles and to eventually gain registered Technician status.

The IET therefor fully supports the provision of good contextualised learning in this area through the delivery of the two qualifications and looks forward to reviewing the detail content and assessment methods as they are developed.

Yours sincerely



Michelle Richmond CEng FIET
Director, Membership & Professional Development



Joanna Deko
Subject Specialist

Human Resources
Network Rail
Western Route
6th Floor, Western House
1 Holbrook Way
Swindon
SN1 1BD

20th June 2014

Dear Joanna

Level 3 Certificate in Quantitative Reasoning

It's very important to a business like Network Rail that our future employees, whom many are current students, have a working practical knowledge of Maths.

Maths reaches to every area of our business from looking at the financial implications of everything that we do no matter what area of the business we work in. From data entry to engineering on the railway line, through to the basics of pay and annual leave allowances.

Our business is measured in statistics that demonstrate to the government and general public how well we perform.

We are finding an increasing number of applicants to our apprenticeship scheme are not possessing the basic entry requirement and therefore believe that this is the right approach.

Kind Regards,

Tammy Taylor

HR Business Partner, Western Route

Joanna Deko
Subject Specialist (Mathematics)
OCR (Oxford, Cambridge and RSA Examinations)
Customers, Curriculum and Qualifications
9 Hills Road
Cambridge
CB1 2EU

2 July 2014

Dear Joanna

OCR Level 3 Certificate in Quantitative Reasoning

On behalf of the Royal Statistical Society, I am pleased to write to you in support of this qualification, following our consideration of the specification dated July 2014 and your follow-on email.

The Royal Statistical Society's response to the DfE Policy Statement on 16 to 18 Core Mathematics Qualifications in England of February 2014 and our response to the Department for Education's consultation on Core Maths Technical Guidance of May 2014 (both available on our website), clearly indicate what features we would like to see the Core Mathematics qualifications to have, namely to:

- contain the full statistics cycle;
- have statistics content that is up-to-date and relevant to target students, in their everyday lives and in higher education or in work;
- ensure students gain experience of working with datasets, especially realistic ones;
- have students work with data using IT.

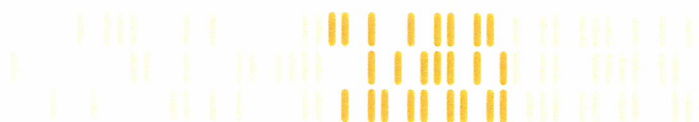
We also expressed a preference for data handling to be assessed and thought that innovative external assessment, eg through the use of pre-release datasets would be beneficial.

We are pleased to see these features in this OCR qualification. We are also pleased to see the Critical Maths component includes sections on fallacies in statistics and other content in probability and risk that will develop students' broader statistical literacy skills.

Yours sincerely



Scott Keir
Head of education and statistical literacy



9 June 2014

Stella Dudzic
Programme Leader (Curriculum)
MEI

Dear Stella

Quantitative Reasoning and Quantitative Problem Solving

I am writing to give my enthusiastic backing to the two Level 3 Certificates in Quantitative Reasoning and Quantitative Problem Solving that MEI is writing with OCR.

I whole heartedly support the approach to teaching, learning (and I hope assessing) in these new qualifications for post-16 study. At last the curriculum community in England is taking steps towards recognising the need to change the extent and form of statistics teaching and learning to make it more useful to students within and beyond school.

As I am sure you know, the research evidence for taking this approach precedes Tim Gowers' ideas and Roger Porkess' report 'A World Full of Data'. It comes from the USA. See, for example, the Cobb report of 1992 (Heeding the Call for Change) and the GAISE School and College reports of 2005 and 2010 respectively. Such evidence influenced the approach to teaching, learning and assessing statistics in the statistics part of the School Mathematics and Statistics Curriculum in New Zealand, which was introduced in 2007/2008.

These new certificates represent 'quants' teaching and learning (and I hope assessing) for 21st century UK school-aged (and older) learners.

The best of luck for getting them accredited. If it would help, I would be happy to argue the case for this approach, using research evidence, in front of anybody at any time.

Best wishes

Yours sincerely



Professor Neville Davies
Director, Royal Statistical Society Centre for Statistical Education
(neville.davies@rsscse.org.uk)



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Tuesday 1st July 2014

Dear Joanna

Subject: Level 3 Certificate in Quantitative Reasoning (MEI) and Level 3 Certificate in Quantitative Problem Solving (MEI)

I read your "OCR's Vision for Core Maths" paper with interest as I had previously met with Terry at Forgemasters to discuss the need for such qualifications/development opportunities. It is our experience that most apprentices we recruit who progress on to relevant FE/HE programmes struggle with the maths content. It is clear from the outset that most apprentices leaving school, even though they may have successfully achieved GCSE Maths Grade A-C, are far too reliant on electronic calculation and lack the ability to quickly determine through mental calculation that an error has been made. In addition they find it difficult to apply the maths they have learnt to the myriad of real workplace situations at our company where such mathematical applications are critical.

It is probably also worth pointing out that we have hosted a number of work experience pupils in recent years whose standard of mathematics has been appalling (unable to do basic addition and subtraction) and many applicants that we screen for our apprentice posts are equally poor in this area.

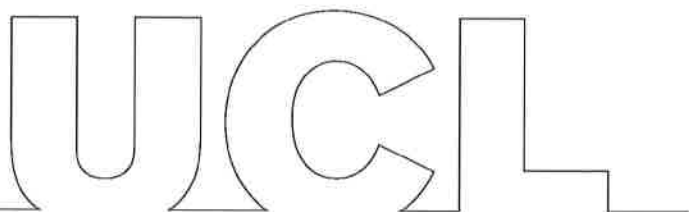
I fully support the recommendations in this paper and the abovementioned qualifications which are clearly designed to address the problems I have outlined in this letter.

Yours sincerely

Rick Franckeiss
Group Training Officer

Professor N Robb McDonald
Department of Mathematics
University College London
Gower Street, London WC1E 6BT

May 27, 2014



Joanna Deko
Subject Specialist (Mathematics), OCR

Dear Joanna,

Level 3 Mathematics Qualifications

I fully support the proposed new mathematics qualifications, Level 3 Certificate in Quantitative Reasoning (MEI) and Level 3 Certificate in Quantitative Problem Solving (MEI), being jointly developed by OCR and MEI. The topics proposed for study, together with the problem-solving approach, will enhance mathematical skills and quantitative reasoning that is needed in other subjects and, more generally, day-to-day life.

I am particularly pleased to note that the qualification seeks to develop confidence and skills in thinking about authentic situations mathematically and in the associated use of mathematical methods and techniques. It seems to me that this will be an extremely useful course for bright, motivated students who do not want pursue a traditional mathematics curriculum.

Yours sincerely

A handwritten signature in cursive script, reading 'N. Robb McDonald'.

Robb McDonald
Head, Department of Mathematics

June 27, 2014

Ms J. Deko,
OCR (Oxford, Cambridge and RSA Examinations) ,
9 Hills Road,
Cambridge CB1 2EU

Dear Ms Deko and colleagues,

I am writing in support of OCR's Level 3 *Certificate in Quantitative Reasoning (MEI)*.

I am a member of the Advisory Committee on Mathematics Education, of the Education Committee of the London Mathematical Society, of the curriculum committee of the Institute of Physics, of OCR's Higher Education Forum, and of MEI's Critical Mathematics group. I was a member both of ACME's original working group on post-16 mathematics-for-all, and of the DfE/ACME Expert Group on Core Mathematics.

OCR's *Certificate in Quantitative Reasoning* seems to me to be exactly what is required to fulfil the DfE technical specification for such courses. It offers a sound balance of material, between the more conventional treatment of the *Introduction to Quantitative Reasoning* (IQR) and the more adventurous *Critical Maths* (CritM). I have been of the opinion since its inception that OCR's *Quantitative Methods*, upon which IQR is based, is the best of the available possibilities upon which Core Maths qualifications could build—above all it avoids the pitfalls into which *Use of Maths* fell a few years ago, causing a debacle. CritM extends this in ways which should develop in students both their numeracy and the ability to use it to reach correct conclusions about quantitative questions of general concern in science, business, finance, policy and society.

The qualification seems to me to offer a well-judged balance of technique and problem-solving, above all in its assessment, which makes good use of pre-release material. In particular, the developers have made a very nice job of the difficult task of specifying the content of CritM,—of describing the essential 'toolkit' with which we wish to equip students.

Of course it is certainly also the case that a great deal of material will have to be developed to support *teachers* in delivering this qualification effectively, but I have no doubt that OCR have both the will and the capacity to do this.

Yours,

Niall MacKay