

*The Institution
of Structural
Engineers*



**INSTITUTE OF
HIGHWAY
ENGINEERS**



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Institution of Civil Engineers

JOINT BOARD OF MODERATORS

REPORT ON JBM ACTIVITIES IN 2013 and 2014

CONTENTS

- 1. Chairman's Introduction**
 - 2. Executive Summary**
 - 3. Role of the Joint Board of Moderators**
 - 4. JBM Activity undertaken in 2013 and 2014**
 - 4.1 Visits undertaken
 - 4.2 Summary of course accreditations
 - 4.3 Summary of programmes accredited as meeting Further Learning requirements
 - 5. JBM main Board**
 - 5.1 Summary of policy items
 - 5.2 Summary of issues arising following visits to review undergraduate courses
 - 5.3 Activities for 2015
 - 6. International Sub-Committee**
 - 6.1 Summary of policy items
 - 6.2 Summary of issues following visits to universities
 - 6.3 Activities for 2015
 - 7. Higher Level and Qualifications Sub-Committee**
 - 7.1 Summary of policy items
 - 7.2 Activities for 2015
 - 8. Further Learning Sub-Committee**
 - 8.1 Summary of policy items
 - 8.2 Summary of issues following visits
 - 8.3 Discussion of items at the request of the JBM Board
 - 8.4 Activities for 2015
 - 9. Good practice**
 - Annex 1 More detailed examples of good practice
 - 10. Statistical Information**
 - Annex 2 Details of Membership
 - Annex 3 Student Intake Numbers 2014
 - Annex 4 Graduates 2014
-

1. Chairman's Introduction

I am very pleased to present report on JBM activities in 2013 and 2014 to you as Chairman of the Joint Board of Moderators (JBM).

The Board has been impressed by the good practice it has seen in many of the departments visited. The Board strongly believes that it is important that it should facilitate the sharing of good practice through this Annual Report and by specific examples provided on the JBM website.

The Institutions continue to be indebted to those members from academia and industry that contribute to the work of the JBM and its associated Sub-Committees.

Professor Stephen W Garrity

2. Executive Summary

The Board and its Working Groups and Sub-Committees discussed a number of major policy issues during 2013 and 2014.

In January 2013 – Mr Clive Onions (Consultant), Professor Chris Clayton (University of Southampton), Professor Stephen W Garrity (University of Leeds), Ms Sarah Buck (BSW Consulting), Dr Adam Crewe (University of Bristol), Mr Paul Whitehead (Leeds Metropolitan University), and Charles Johnson (Atkins Global) – joined the Board.

In January 2014 – Professor David Cleland from Queen's University, Belfast (new Chair of the International Sub-Committee) and Professor Mark Stirling from University of Birmingham joined the Board.

In 2013 and 2014 the JBM undertook 19 full re-accreditation visits, 12 review visits, three pre-accreditation visits and participated in three EAB visits.

A re-accreditation visit to the Malaysian campus of Nottingham University took place at the end of November 2013 and the report was considered by the International Sub-Committee and the Board in 2014. The first JBM accreditation visit to the Dubai campus of Heriot-Watt University took place in March 2014 and to the Royal School of Military Engineering as part of an Engineering Accreditation Board (EAB) visit in July 2014.

In January 2014 - Professor Stephen Garrity succeeded Dr John Roberts as Chairman of the JBM and Professor David Cleland succeeded Professor Nigel Smith as the Chairman of the International Sub-Committee.

During this period Professor Lark acted as Chairman of the Further Learning Sub-Committee and Mr Jones for the Higher Level and Technician Qualifications Sub-Committee.

Monitoring and audit visits continue to be made to organisations offering approved Employer Managed Further Learning programmes.

The JBM guidance on website wording is monitored by visiting teams and the JBM secretariat. It was noted that the various Institution Auditors were also reviewing University website wording as part of the audit process. The Board has agreed that there should be an annual review of all website wording.

3. Role of the Joint Board of Moderators

The Joint Board of Moderators (JBM) is a body that was arguably thirty years ahead of its time. Founded in 1977 by the ICE, IStructE and the IMunE (Institution of Municipal Engineers), the JBM is the interface between universities, professional institutions and industry – it pre-dates the government's current employer-engagement agenda and carries out vital work to ensure Civil Engineering standards are maintained and up-to-date.

It does this, among other things, by carrying out visits to some 56 UK universities to accredit the educational base for membership of the institutions, and the award by licence from ECUK of CEng and IEng status. The JBM also has 3 sub-committees which look at Further Learning, Higher Level and Technical Qualifications and International matters. Further Learning builds on the educational base of a Bachelors degree and leads to achieving IEng or CEng through the membership routes of each of the JBM institutions. In most cases, a Masters degree completes the educational base.

Four institutions currently make up the membership of the JBM – ICE, IStructE, IHE and CIHT – and the Board has a balanced membership of academic and industrial members, from the public and private sectors, with the chairmanship alternating between the industrial and academic members. The current Chair for example is Professor Stephen Garrity from the University of Leeds and the next Chair will be from industry.

This balance of membership is what gives the JBM credibility – with a panel of academic and industrial members to draw on for accreditation visits - links between employers and universities are strengthened so that degrees meet employer expectations and, at the same time, industry is kept up to date with and can contribute to the Civil Engineering curriculum and its delivery. Typically visits to universities take place on a 5 year cycle, with review visits in-between, where appropriate, to follow up issues and review progress on new courses. The review follows JBM guidelines which comply with the 'UK-SPEC'. These guidelines identify the three compulsory core subjects of Geotechnics, Materials and Structures together with minimum requirements in mathematics, fluid mechanics and surveying. Universities are also required to identify the 2 additional core subjects which reflect their expertise and research strengths. Compulsory "threads" of Design, Health and Safety Risk Management and Sustainability must also run throughout each accredited undergraduate programme. Further guidance is provided by the Board on a range of additional matters including entry qualifications, industrial training, links with industry, digital technologies and site visits.

A review team consists of two academics, two from industry, a secretary from one of the institutions, and, often, an observer who may be a JBM Board member who is new to the process. The review itself is intensive, with the team meeting the departments', support staff, senior university staff, members of industrial boards and not least, the students and recent graduates. There is a thorough review of the output standards of the work produced by students, tours of facilities, workshops and laboratories, feedback to the department and finally the report.

The benefits of a visit go far beyond accreditation, however, with good practice identified within the visit reports and highlighted on the JBM's web-site – www.jbm.org.uk - and through its annual report. Arising from this, opportunities for development are identified.

Essentially the JBM exists to strengthen Civil Engineering as a subject within universities, supporting departments, promoting professional membership, and encouraging participation with industry. As such the JBM is recognised as a pre-eminent brand for accreditation of university civil engineering (and related) degree programmes run by university departments.

To reflect the range of the Board activities several specialist Sub-Committees have been established as follows: -

The International Sub-Committee of the JBM was established to assist the Board in its international activities and continues to develop international agreements with similar accreditation bodies operating in the built environment where the degree programmes would meet the educational benchmark requirements for membership.

The remit of the Further Learning Sub-Committee is to produce a series of documents defining further learning and provide supporting information and guidance, clearly setting out procedural and explanatory notes. The Sub-Committee also considers applications from Universities and Organisations for the approval of Masters Degrees and Employer Managed schemes as meeting the Further Learning requirements for Chartered and Incorporated Engineers as appropriate.

The Higher Level and Technicians Sub-Committee are responsible to the Board for any activities that relate to the assessment of Foundation Degrees/HNC/HND/NC/ND or equivalent programmes of study.

The Panel of Moderators has been established to assist the Board in its accreditation activities. This Panel consists of those members who can be called upon to form part of the accreditation visit teams. Members will be selected on the basis of their background and experience relevant to the programmes to be accredited. They will normally have been actively involved in accreditation activities through JBM within the previous 5 years. Normally, all visit team leaders, and one other member will be drawn from the Board and the remainder may be drawn from this Moderators' Panel.

The Board publishes a list of all accredited programmes on a regular basis; please refer to the JBM Website for more information on www.jbm.org.uk.

4. JBM Activity in 2013 and 2014

4.1 Visits undertaken

Quinquennial Visits (Dates in 2013)		Review Visits (Dates in 2013)		EAB Visits (Dates in 2013)	
Brighton	14 – 15 March	Suffolk New College* (University Campus Suffolk)	7 March	Durham	27 – 28 November
West of Scotland	21 – 22 March	Ulster and South West College	11 – 12 February		
Southampton	10 – 11 October	University College London	25 April		
Bristol	24 – 25 October	Derby	6 June		
Nottingham	21 – 22 November	Glamorgan	14 June		
Nottingham (Malaysia)	25 – 26 November	West of England	20 June		
		Wolverhampton	5 July		
		Teesside	24 – 25 October		
		Abertay	8 November		
		Pre-visit briefing/ongoing advice (Dates)			
		Northumbria	21 February		
		Llandrillo College*	4 July		
Quinquennial Visits (Dates in 2014)		Review Visits (Dates in 2014)		EAB Visits (Dates in 2014)	
Liverpool	16 – 17 January	University of West London (MSc review)	23- 24 January	Bristol	30 April – 1 st May
Exeter	26 – 27 February	Brunel	10 April	Royal School of Military Engineering	16 – 17 July
Heriot-Watt	6 – 7 March	Suffolk New College*	3 July		
Heriot-Watt (Dubai)	9 – 13 March				
Liverpool John Moores	6 – 7 March				
Cardiff	13 - 14 March				
Surrey	20 – 21 March				
Queen's Belfast	3 - 4 April				
Sheffield	10 – 11 April				
Coventry	16 – 17 October				
Leeds	6 – 7 November	Pre-visit briefing/ongoing advice (Dates)			
Kingston	13 – 14 November	Northumbria	5 June		
Portsmouth	20 – 21 November				

* Visit covered IEng programmes only

4.2 Summary of course accreditations

Date of JBM Board Meeting in 2013	No of UK Visit Reports considered CEng	No of Visit Reports Considered (O.seas) CEng	No of Paper Submissions for new programmes and reports on responses to JBM recommendations	CEng Approved	CEng Rejected	No of UK Visit Reports considered IEng	IEng Approved	IEng Rejected	Eng Tech Approved
08.02*	3	-	4	14	-	1	3	-	1
28.06	4	-	2	7	1	4	2	-	4
11.10	4	-	2	14	-	1	1	-	2
Total 2013	11	-	8	35	1	6	6	-	7
Date of JBM Board Meeting in 2014									
07.02**	5	-		19	-	1	1	-	3
27.06	13	2	4	60	-	-	-	-	-
10.10	1	-	1	7		1	1	-	11
Total 2014	19	2	5	86	-	2	2	-	14

*This JBM meeting considered a number of visit reports for visits undertaken in October/November 2012.

**This JBM meeting considered a number of visit reports for visits undertaken in October/November 2013.

4.3 Summary of academic programmes Accredited as meeting Further Learning requirements

Date of JBM Board Meeting In 2013	Further Learning for CEng	Further Learning for CEng Rejected	Further Learning for IEng	Further Learning for IEng Rejected
08.02*	11	-	-	-
28.06	9	1	-	-
11.10	3	-	-	-
Total 2013	23	1	-	-
Date of JBM Board Meeting In 2014	Further Learning for CEng	Further Learning for CEng Rejected	Further Learning for IEng	Further Learning for IEng Rejected
07.02**	20	-	-	-
27.06	53	1	-	-
10.10	2	-	-	-
Total 2014	75	1	-	-

*This JBM meeting considered a number of visit reports for visits undertaken in October/November 2012.

**This JBM meeting considered a number of visit reports for visits undertaken in October/November 2013.

5. JBM Main Board

5.1 JBM Board Summary of Policy Decisions and Main Discussions by the Board

A number of major policy issues were discussed by the Board and by Sub-Committees on behalf of the Board during 2013 and 2014.

▪ **Accreditation of Innovative Provision**

The Board noted that information and a range of examples of accredited and innovative practice, in preparation for the workshops being held at the 2013 EPC Congress and the HEA STEM Conference, can be found at: <http://www.engc.org.uk/education--skills/accreditation/accreditation-of-innovative-provision>

The Board were reminded to inform the EngC of any further examples of innovative practice in accredited courses.

▪ **Association of Civil Engineering Departments**

The ACED Committee is now contacted before each JBM meeting to ask if there are any items that they would like to raise for discussion with the JBM Board and its representatives. The ACED Committee attended the JBM Board meeting in February 2014 and this will be an annual activity. During 2015 members of ACED will be involved the JBM working groups reviewing degree guidelines and associated submission and visit documentation. The JBM chair gives an update on JBM matters and related activities at the annual ACED conference (usually held in autumn each year) and at the annual ICE/IStructE/ACED Heads of Departments meeting (usually held in spring each year).

▪ **Website wording**

This continues to be monitored by the ICE and JBM secretariat. There has been a large improvement in the wording issue as a whole since website wording checking began. Visit Teams now check the University website before visits and the correction of this has been made an accreditation recommendation in recent visits where the website has been incorrect or misleading. The UCAS website wording can also be potentially misleading but only universities can change their entries on this website and is based on key information sets relating to each programme, rather than the department.

▪ **Working Group established to provide better guidance to universities on the development of new degree programmes.**

Following feedback from a number of accreditation visits, the Board agreed to set up a working group to review the guidance we give to universities who are developing new degree programmes in civil engineering or degree programmes at a new level i.e. moving from IEng to BEng and BEng to MEng or to offering an MSc programme for the first time.

▪ **JBM Revised Terms of Reference**

At its meeting in October 2013, the Board received confirmation that the Qualifications and Audit Committee of the Engineering Council agreed new decision making rights for the JBM and these became effective for the February 2014 meeting onwards. Whilst this process has not reduced the time taken for a visit report to be discussed at the next available Board meeting, the time taken to notify universities of accreditation decisions after the meeting has significantly reduced.

- **New provider need to review output before an accreditation decision can be made**

The Board agreed that some output would need to be viewed before accreditation can be considered. This would involve reviewing first year work and project output from other disciplines. It was confirmed that JBM policy prevents accreditation being granted until a review of output has been carried out. If the visit is satisfactory, accreditation can then be backdated. The University can inform potential students that accreditation is currently being applied for so that recruitment is not too adversely affected.

- **Submissions from different Departments within the same University**

The Board agreed that on future visits a joint submission should be made where there are different departments wishing to have courses accredited. There would then only be one visit and the Team size can be adjusted accordingly if there will be a large number of programmes (the Board can be informed of the number of programmes to be accredited in the following year in an annual update/return of data). The lead department will be the one that delivers the undergraduate courses such as BEng or MEng.

- **EUR-ACE Accreditation and use of logo**

The Board noted that the Engineering Council is keen for professional bodies to promote EUR-ACE registration where possible and it was agreed that accreditation decision letters should be updated to advise the University that they could apply to have their programmes listed on the EUR-ACE database but that there would be a charge for this.

At the 2013 June Board meeting, Prof Garrity was pleased to welcome Ms K Turff (International Manager Engineering Council) and Prof Augusti, Chair of the EUR-ACE delegation that observed the JBM accreditation visit to Sheffield University. Ms Turff advised the Board that the EngC is one of 11 agencies that are licensed to award the EUR-ACE label. There is a five year renewal process to extend this Licence that is similar to an accreditation visit to a university. This process involves the submission of a self-assessment document and the need for observation visits. As the EngC does not undertake accreditation visits itself then the EUR-ACE observation visit will involve the observation of an accreditation visit undertaken by one of the licensed Professional Engineering Institutions (PEIs) and also attendance at an accreditation Panel or Board meeting that discusses visit reports and accreditation policy. On behalf of the EngC, she thanked the JBM and Sheffield University for allowing the EUR-ACE delegation to participate in the re-accreditation visit to the University.

- **Teaching of materials – development of a good practice guide**

Following feedback from a number of visits where visiting teams had identified that the teaching of materials needed to be improved, it was suggested that the Guidelines Working Group would consider the development of a Good Practice Guide in this area. This could then, possibly, be supported by a series of workshops made available to lecturing staff, similar to the work the Board had done with Think Up around the area of sustainability.

- **Accreditation of new degree proposals**

In February 2014 the Engineering Council re-issued the Revised Registration Code of Practice (Registration Code). In particular, the following sentence from paragraph 29 is of relevance when visiting teams are being asked to look at new programmes as part of submission documentation: -

Programmes which at the time of application do not have an output cohort may be accredited, but Licensed Members shall monitor the output of such programmes and review their accreditation accordingly.

To support visiting teams, Prof Lark together with his colleagues on the FLSC will develop a guidance note for Team members to use when they are asked to assess new course proposals on future visits or through paper submissions.

▪ **Feedback at the end of an accreditation visit**

The Board were asked to consider whether Visiting Teams should be able to give universities direct and specific feedback on accreditation recommendations at the end of the visit. After some discussion, it was agreed that procedures should remain as they are in place to prevent any negative situations should the Board not approve the recommendations made in the visit report. It was reiterated that nothing in the report should be a surprise to the University and that other recommendations and requirements should be discussed with staff during the final meeting. The Board was also reminded that the Visit Team should ensure on the first morning of the visit that the University is aware that feedback regarding specific accreditation recommendations will not be given.

▪ **Statistics teaching**

Statistics teaching should be present within the curriculum and be positioned in Year 1 or 2 of programmes, and should include teaching on data analysis and probability theory. Para 3.5 of the MEng guidelines currently says 'Elements involving calculation, experiment, observation and deduction, must form a significant part of the programme.' (Para 3.4 in the BEng guidelines).

The new edition of the Engineering Council's publication Accreditation of Higher Education Programmes (AHEP) does now contain a reference to statistics and the JBM Guidelines Working Group will be asked to review existing guidelines to make sure that this change in requirements is noted.

▪ **Electronic submission of student output**

It has been requested that the JBM visit guidelines should consider how universities might most effectively and efficiently present electronic student output for inspection. The Board agreed that this is a matter for the Documentation Working Group to consider as it relates to guidance on submission documents.

▪ ***Engineering Council Annual Meeting, Chairs of Accreditation Panels***

The Chair of the JBM is invited to attend the annual meeting of Chairs of Accreditation Panels.

▪ **Submission of Annual Report to subsequent JBM visiting teams**

If recommendations to a department following a full visit are addressed through an annual report or a review visit, does the visiting team at the next full JBM visit need to consider all the recommendations again or just the new ones that were identified at the Review visit? The Board agreed that it is helpful for Visiting Teams if all this information is contained in the submission document and that it should not be difficult for the University to provide this information.

- **To consider the issue of a 3rd Class MEng degree and if it is possible for this level of award to be accredited?**

After a lengthy debate at the October 2014 Board meeting, it was agreed that introducing a policy on this area would introduce some complexity into the accreditation process, for example what is 3rd Class standard? What drives the standard above this benchmark? and can the Board provide clear guidance on these matters? If the programme and the student are satisfying the Learning Outcomes then this is not an issue. It was suggested that the Documentation Working Group should be considered if the JBM visit report template should be amended to ask teams to include more information on how the programmes satisfy Learning Outcomes. In the meantime it was agreed that the Board would be happy to continue to accredit MEng degree programmes at 3rd class honours, providing the programme and the students' performance maps to the appropriate Learning Outcomes and also satisfies the JBM guidelines.

- **Update on academic staff holding professional qualifications**

Following responses to a questionnaire sent out in autumn 2012, Ms Ryan reported at the 2013 February Board meeting that 52 of 68 universities asked now comply with the requirements, that by 2015, 50% of the teaching staff must hold appropriate professional qualifications. However, it should be noted that percentage of adequately qualified staff at the institution can drop if only the qualified engineers are taken into consideration. There are ten universities who do not meet the requirements. Some universities gave information on their training and recruitment policies. Greenwich and Derby are encouraging appropriate staff to become EngTech, which should be applauded. It should also be noted that the JBM is the first body to introduce this as a specific policy.

- **Visit Feedback Form**

In September 2014, a questionnaire was sent to 18 Universities whose visit had taken place in the period October 2013 – July 2014. 13 replies were received, all from those who had undergone full re-accreditation visits. In this period we had undertaken 5 Review visits and one EAB visit and this covers those organisations that did not respond.

The JBM had been keen to receive feedback on the new visit timetable and input from universities into the guidelines review and the documentation working group. The feedback was mostly positive, there were no major issues identified but a desire to move to more electronic based submissions. The Chair had also been keen to ascertain if Universities wished the pre-visit briefing sessions to be re-introduced and just over 50% said they should be re-introduced but only if there had been some key changes in requirements or to the documentation to be provided since the last visit.

The greatest lack of clarity was in regard to the new 3.30 session on the first day of the visit with students, universities were able to arrange for students to meet the visiting team at this time but had not been clear on what benefit this provided. The intention had been to allow the Team, if they had issues to explore the threads in more detail but the University was concerned that students would need to review the work of their colleagues and not their own work and thus there would be issues of confidentiality that they were unhappy with.

5.2 Undergraduate programmes – comments included in various Visit Reports

General

- That more posters, displays and examples of civil engineering projects be added to the corridors and in other parts of the department where students can see them in order to increase visibility and the identity of a Civil Engineering “home”.

Undergraduate Programmes

Aims and objectives

- Aims and objectives of different programmes should be programme-specific and thus reflect differences between the programmes.

Communication Skills (including drawing and sketching)

- That the department continue to monitor students whose first language is not English, as there was evidence of poor English in the output and that this is kept under review.
- During visits teams will expect to see evidence of the students’ ability to undertake hand drawing and sketching.

Compensation

- Universities are reminded that compensation regulations should be in line with JBM guidance.

Core Subjects

- On a number of visits Departments have been asked to clarify which List B Subjects are core in the departments undergraduate programmes. This must be clear from the submission document.
- Departments are also being asked to review the thread of materials to expand the range of civil engineering materials examined and to make more reference to practical applications with a view to inspiring student learning. Materials teaching should extend beyond Year 1 for all students and consideration should be given to including other materials, for example masonry/brickwork.

Coursework

- JBM teams will expect to see appropriate academic referencing in the students’ work.
- It is suggested that all students should receive a schedule of coursework submission dates when they start their programme of studies.

Data Analysis/Statistics

- Departments are reminded that students need to be able to collect and analyse data.

Design Studio space

- It is good practice that Departments have some flat flexible design/studio space that could be used for group work including drawing and sketching.

Differentiation between BEng and MEng programmes

- Departments should consider if it is possible to have greater differentiation between the BEng and MEng programmes.

Examination Papers (undergraduate)

- The BEng exam papers and solutions must be made distinct from those set for the BSc/Eng students across all modules and it is important that students, especially MEng final year students, are asked to answer open-ended questions in their examinations, where this is appropriate

Feedback

- Despite feedback from NSS scores a number of Departments have asked to review their feedback mechanisms to inform students of their progress and to close feedback loops by informing students of the actions taken as a result of student comments.

Foundation degrees

- The work-related learning aspects of the FdSc should be strengthened.

Health and safety of staff and students

- Departments are reminded that they have a duty of care to staff and students and this should be reflected by the condition of the laboratories.

Industrial Advisory Panels

- On a number of occasions the visiting teams recommended that the Chair of the Industrial Advisory Board or its equivalent should be an industrial member of the IAB. Teams have also commented that the membership of the IAB should be strengthened, used more effectively and that more regular meetings are arranged.

Industrial placements

- Checklist for an industrial placement should allow the staff member undertaking visits to students to confirm that they have received a safety briefing.

Learning outcomes

- To review the Learning Outcomes descriptors for each module specification as some have the incorrect level descriptors.

Links with JBM member Institutions

- On visits, teams will check that students are aware of the membership opportunities within all four JBM institutions. It is recommended that Departments have good links with their local Institution branch or region and that the Institutions are invited to make presentations to students about student membership and routes to registration.

MEng degree (new provision)

- When MSc modules are being adapted to MEng modules it is important that the revised module content does not duplicate earlier teaching material from the BEng programme and that students answer open ended questions in their examinations.

Placement Year

- It is suggested that guidelines for programmes with a Placement Year should include a requirement for Reflective Reports.

Project work

- Departments should encourage students to do more laboratory based projects and discourage third year projects that are pure literature reviews or desk-top studies. There should be clear procedures and documentation available that outlines the process that will be used to assess an individual's contribution to Year 4 projects and all other group work. It is a condition of accreditation that the student must pass their project and it is suggested that the number of attempts allowed to pass the individual project should be a maximum of two. In some Departments for the final project students are allocated separate marks for addressing the areas of sustainability, health and safety risk, ethics and economic/social/environmental context - this is particularly helpful to a visiting team when looking for evidence that the threads are present within the teaching and learning.

Staffing levels and professional qualifications

- Departments are reminded that they must review and monitor the staffing levels to ensure that there is sufficient staff to deliver the accredited civil engineering degree programmes. It may be appropriate for Departments to consider the risks associated with low staffing levels especially if the member of staff responsible for the delivery of one of the core subjects is not available.
- Departments should continue to support and encourage staff to gain professional qualifications with a view to achieving the target of 50% of staff holding appropriate professional qualifications. It has been noted on some visits that for some academic staff the University has been able to cover the cost of professional fees and the JBM would encourage Departments to see if this scheme could be introduced for the civil engineering staff as well. In some other cases academic staff have been able to use income generated from consultancy activities or provision of short courses to cover at least one annual professional body membership fee.

Site visits

- Every effort should be made to ensure that all students take part in an appropriate number of site visits. The right for site visits to students should be built into any new contracts let by the Estates team for any new build facilities on campus. The JBM would expect that all students should participate in at least one site visit per year and also that site visits should also be arranged for full-time MSc students.

Student support

- On the whole this was good but some Departments need to ensure that support is available for those students identified as struggling with physics, mathematics and English.

Threads

- It should be clear from evidence provided to visiting teams that the embedment of the threads can be easily identified in student output. Where appropriate these should be acknowledged as a primary outcome in relevant modules and the evidence should support this. It has been suggested to some Departments that they appoint a sustainability champion

who could review the full programme and ensure that the thread is enhanced and embedded as appropriate at all Levels.

Website wording

- Departments are reminded that visiting teams will check website wording as part of the visit and are reminded that completion of an accredited MSc does not automatically meet the Further Learning requirements for those students with an IEng accredited degree. Reference to IEng courses should be removed from wording as these students will need to apply for an academic assessment on graduation to receive confirmation that they satisfy the educational base for CEng registration.

Workplace Learning

- That the wording in promotional literature regarding workplace learning is reviewed so that potential students are made aware that this is not guaranteed and that the emphasis is on the students to find a placement. A number of Universities are employing a part-time placement officer to help students find placements.

5.3 Activities for 2015 JBM main Board

In 2015, the following areas are to be considered by the JBM: -

- To undertake 19 full accreditation visits and to participate in 1 EAB visit.
- To review the reports and associated documentation from the working groups

6. International Sub-Committee (ISC)

Two meetings of the International Sub-Committee were held in 2013 and one in 2014.

6.1 Summary of policy items

- **Sri Lanka**
The Institution of Engineers Sri Lanka has now gained full membership of the Washington Accord and therefore JBM accreditation may not be necessary.

Several Sri Lankan colleges offering degrees under a partnership arrangement with a UK university have been contacted regarding website wording as they do not make it clear that the courses are not accredited as there is a link through to the UK University accredited course.
 - **Pakistan**
The Pakistan Engineering Council (PEC) has applied for provisional membership of the Washington Accord.
 - **Hong Kong University of Science and Technology and the University of Hong Kong :**
A number of MSc programmes at these Universities have now been re-accredited.
 - **China Association for Science and Technology (CAST)**
This organisation has been given provisional membership of the Washington Accord.
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- **Engineering Council's Trans National Education (TNE) Working Group**

Representatives from the JBM have been involved in this Working Group (WG) that was set up by the International Advisory Panel of the Engineering Council in September 2013 to look at how the different accreditation accords relate to each other. It is an EC requirement to visit every provider, unless a case is made to the contrary, and this can prove problematic in terms of volume of work. It is also a requirement of the accords. The two key issues that the WG was asked to consider are 1. When, or if, to visit and 2. Issues associated with the Washington Accord. Due to a number of unresolved issues or, perhaps, unresolved complexities the final report of the WG will be available in early 2015.
- **University of the West Indies**

Members of the ISC have had an opportunity to review the response from the new Head of Department, to the requirements listed in the 2011 Visit Report. The ISC agreed that as there had been significant process since he had taken up this post that they would be happy to recommend extended accreditation of degree programmes.
- **University of Nottingham Malaysia**

The re-accreditation visit to the Malaysian campus of Nottingham University took place on 25th – 26th November 2013 and was led by Prof Nigel Smith. The Visit Report was discussed by the ISC and the Board and they were happy to extend accreditation of the degree programmes.
- **Heriot-Watt University Dubai**

The first accreditation visit to the Dubai campus of Heriot-Watt University took place on 11th – 12th March 2014 and was led by Prof Roger Plank. The Visit Report was discussed by the ISC and the Board and they were happy to accredit the various degree programmes.

International Campuses

- The JBM would expect that External Examiners be asked to comment on the quality of course provision at both campuses to ensure that comparability issues are highlighted and addressed.
- Departments should also establish an Industrial Advisory Committee to help inform curriculum development from an in-country perspective and provide better links into research and consultancy.

Support for the Engineering Council

- Members of the Sub-Committee also provided feedback to Professor Cleland on the proposed revisions to the proposed EUR-ACE Framework Standards and Guidelines.

6.2 Activities for 2015

- To co-ordinate and undertake JBM visits to the two universities in Hong Kong that offer approved MSc programmes, the Ningbo campus of Nottingham University, Xi'an Jiaotong - Liverpool University and undertake a pre-accreditation visit to the MTC in Oman.
- Review any reports from the Engineering Council's TNE Working Group.

7 Higher Level and Technician Qualifications Sub-Committee

The Sub-Committee met one in 2013 and met twice in 2014.

7.1 Policy items

Approval of Higher Nationals – SQA NC and HNC, HND programmes in Civil Engineering

- Members of the Sub-Committee reviewed the changes made by the Scottish Qualifications Agency (SQA) to the new HND programme in Civil Engineering to reflect feedback from the Sub-Committee and were happy to recommend to the Board that graduates from the HND will, after a period of appropriate Further Learning, satisfy the educational base for an Incorporated Engineer and also for those wishing to become Engineering Technicians. SQA proposals for HNC and National qualifications in Civil Engineering were also approved by the Board as satisfying the educational base for an Engineering Technician

City and Guilds proposals for new qualifications at Level 4 and Level 5

- The Sub-Committee has been in discussion with City and Guilds regarding its proposals for new qualifications Level 4 and level 5 in civil engineering that have now received approval by the appropriate committee at the City & Guilds. The Level 4 Certificate has been designed to meet the educational base for an Engineering Technician and the Level 5 Diploma has been designed to contribute towards the educational base for an Incorporated Engineer but also to allow trainees to meet the educational base for an Engineering Technician. These new qualifications have been designed after consultation with Universities and employers and were mainly aimed at their strong overseas market but could also be delivered in the UK if centres were interested. The qualification is designed primarily for employment purposes not for entry to a degree programme. The Sub-Committee look forward to receiving a formal submission of documentation from City and Guilds in 2015.

Trailblazers

- The Sub-Committee has been tasked with updating the Board on any issues associated with new Trailblazer qualifications. Andrew Stanley (ICE) has been keeping the Sub-Committee updated on the new Trailblazers process for approval of Apprenticeship standards. At the moment (late 2014) there are two case studies in our area the **Railway Engineering Design Technician Apprenticeship Standard** where the lead employer is CH2M Hill and the **Construction Higher Apprenticeship** where the lead employer is Balfour Beatty. Formal submissions will come to the JBM via the Sub-Committee in due course for approval of the qualification structure as meeting the educational base for EngTech registration.

HND Funding

- The Sub-Committee considered the changes in the Higher Education White Paper will impact on funding for HND courses. All HND programmes will be moved from the HE funding criteria to the FE funding area. The need to reduce government funding was due to the large number of private providers who are offering low cost classroom based subjects such as

business studies or finance. This change is likely to deter students from committing to a full degree programme because of increased costs which are the result of a lower student loan. The RAEng, E4E and the Engineering Council have all written to BIS to ask if there could be an exemption in this change for students studying qualifications in engineering as loans for HE studies are more attractive than loans for FE studies and the lack of support will deter students from studying engineering.

7.2 Activities for 2015

In 2015 the Sub-Committee and the Board will: -

- Implement an approval process for new qualifications developed in line with the template for a Trailblazer qualification
- Monitor and contribute to the development by Edexcel (Pearson) of a level 6 qualification

8 Further Learning Sub-Committee

The Further Learning Sub-Committee met once in 2013 and twice in 2014.

8.1 Summary of key items in 2013 and 2014

- **Training for Universities and for companies offering Employer-Managed Further Learning programmes**

Two training events were held in 2013; one was for MSc admissions tutors and the other for companies offering Employer-Managed FL Programmes. A WebEx briefing was held in April for universities with approximately 25 universities joining the session. Feedback showed that attendees found the event useful but that there were some technical issues which it is hoped can be overcome for any future sessions. A set of FAQs was developed from all the questions asked, and sent to the universities. Training for six companies took place on the 27th June and the informal feedback received by the Secretariat is that attendees found this very useful in helping them to assess candidates accurately and ensure that procedures they have in place are correct and whether these could be improved. It has been suggested that both training sessions could be held annually in some format to ensure that as many people as possible benefit from this. These events will be organised to tie in with the launch of the new guidance material in autumn 2015.

- **IEng Exemplar learning Outcomes Table for Employer-Managed programmes**

The Board discussed the draft IEng Learning Outcomes table that had been developed to give support to employers operating Employer Managed Programmes. The wording of one of the IEng Outcomes which has reference to a 'systems approach' was reviewed to see if this could be clarified. Dr Roberts advised the meeting of the work currently being undertaken by the Accreditation of Higher Education Programmes (AHEP) Working Group, which is also looking at how the term 'systems engineering' could apply across all engineering disciplines as a general statement. The AHEP Working Group felt that if this term was amended to 'a systematic approach to engineering' this would then apply just as well to civil engineering as to mechanical engineering. It was agreed that to avoid confusion going forward that in our discipline this term should be written in full i.e. a systematic approach to engineering and not the shorthand version of a systems approach.

- **Audit visit to Costain**

The audit visit to Costain took place in October 2014 and the audit report will be considered in early 2015. This visit was to look at output from the organisations' Employer-Managed FL programme designed to meet the FL requirements for a Chartered Engineer.

- **Ongoing assessment of MSc programmes**

Members of the Sub-Committee continue to be involved in the assessment of new MSc proposals or the review of output in response to recommendations made by a Visiting Team that related to MSc programmes only. These reviews have identified a number of policy items that were also discussed by the main Board such as compensation regulations for MSc programmes,

8.2 At the request of the Board, the FLSC considered the following policy items that had been identified during accreditation visits in 2014: -

(a) *Appendix F: MSc entry. It is not necessary to know the names of those accepted onto MSc courses. All that is required is the university, degree title and award classification.*

The FLSC confirmed that it was not a requirement for the University to provide the 'names' of the students.

(b) *That the JBM may wish to review its distance learning guidelines, e.g. there is no mention of how to identify candidates at remote examination centres. In the light of the ongoing expansion in distance learning it may be an appropriate time for the JBM to issue revised and more robust guidelines to forestall future problems.*

The MSc Guidelines have been re-drafted to reflect this feedback and this draft is currently with members of the FLSC for review. The ICE and IStructE secretariat have provided the guidance they issue to candidates attending a professional review and this will be considered by the FLSC and reflected in the new Guidelines, which will be available in 2015.

(c) *The distance learning guidelines issued by the JBM state that distance learning courses should be completed in four years whereas the department suggest five years. The Team were persuaded by this argument and suggest that the recommend length of MSc's within the JBM guidelines is changed to 'normally four to six years'.*

The FLSC agreed that the guidelines should be amended to reflect this feedback i.e. MSc programmes should normally be completed within four to six years but in not more than six years.

(d) *Feedback from JBM Board and EAB meeting regarding a Risk Based Approach to accreditation of new programmes*

At the June Board meeting, Prof Lark was asked to bring this issue to the attention of the Sub-Committee. Following a general discussion it was agreed that Prof Lark would produce a

guidance note for use by members of the JBM when they are considering applications for the approval of new programmes.

(e) *Engineering Council Revised Standards and Regulations for Registration, Accreditation Guidelines and Regulations for Registration*

Members of the FLSC have begun the process of reviewing and updating the range of documents that support the Further Learning process to reflect changes in these documents. For example the new submission document has been updated to reflect a reference to the fact that an EngD programme can be accredited for Further Learning purposes.

8.3 Issues following accreditation/approval visits in 2013 and 2014 are shown below.

Development of new programmes

- It is recommended that departments wishing to develop and seek accreditation of a technical MSc programme it should engage with the JBM at the earliest opportunity to ensure that the technical requirements are clearly understood.
- Before developing a new programme the Department should have an understanding of the differences between an IEng degree and a BEng (Hons) degree accredited at CEng level and MSc levels of education and the associated academic challenges to inform any further development of the departments MSc programme to meet the requirements.
- All module descriptors should be labelled level M or FHEQ level 7.
- To prepare specimen exam papers where none exist for new MSc programmes.
- That by the time of the next visit, the JBM team would expect to see evidence that students have completed a Technical MSc and that the student handbook and other associated information confirms this.

Dissertations

- Departments should ensure that the dissertation subjects chosen by students on the MSc course have a technical focus if the Department is seeking accreditation of the MSc as a Technical programme.

Examination Questions

- To ensure that examination questions and other elements of assessment require the students to exercise a greater degree of engineering judgement, critical appraisal and evaluation. Examination questions and other elements of assessment should provide a consistent level of challenge that is appropriate for a Masters (FHEQ Level 7) programme.

Facilities

- To continue with the programme of investment in laboratories to develop improved facilities for research and teaching in designated subjects.

Learning Outcomes

- To undertake a review of the MSc programme to ensure that the aims, objectives, curriculum, assessment strategies and learning outcomes are all appropriate for a Masters (FHEQ level 7) programme and that the programme meets the UK-SPEC and JBM requirements.

Technical Dissertation Requirement

- As the MSc is technical, the department must ensure that the final dissertation is technical in nature including critical evaluation/analytical assessment.

Discrepancy in marking

- A third marker must be used where there is a discrepancy in marking of 7% or more.

Website wording

- The wording on the web-site for MSc programmes must show correct accreditation information.

Approval of Further Learning programmes

During the past two years the Sub-Committee has continued to approve company and university proposals for schemes of Further Learning.

The current list of approved Employer-Managed programmes is as follows: -

- o Cambridgeshire County Council
- o Costain
- o Dawnus Construction Ltd
- o BAM Nuttall
- o Jackson
- o Network Rail
- o PWD Brunei

New approvals in 2013 and 2014

Following visits or reviews of paper submissions some 98 MSc programmes and one Engineering Doctorate programme were accredited during 2013 as meeting the Further Learning requirements for a Chartered Engineer under the provisions of UK-SPEC for holders of a CEng accredited BEng (Hons) undergraduate first degree from the following universities: -

- o University of Bath
- o University of Birmingham
- o University of Brighton
- o University of Bristol
- o Brunel University
- o Cardiff University
- o University of Dundee
- o University of East London
- o Exeter University
- o Heriot-Watt University, Riccarton
- o Heriot-Watt University, Dubai
- o University of Hong Kong
- o University of Liverpool

- o Liverpool John Moores University
- o University College London
- o University of Newcastle
- o University of Nottingham, Nottingham
- o University of Nottingham, Malaysia
- o Nottingham Trent University
- o Queen's University Belfast
- o Royal School of Military Engineering, Cranfield University
- o Sheffield University
- o Surrey University
- o University of Southampton
- o University of South Wales
- o Teesside University
- o University of Ulster
- o University of Warwick
- o University of the West Indies

For a full list of accredited programmes please see the list on the JBM website (www.jbm.org.uk)

8.3 Activities for 2015

The Sub-Committee discussed its plans for 2015 and agreed that the key focus during 2015 will be the need to review and update existing published material as many of these resources have been developed on a piecemeal basis over a number of years in a range of different styles and they need to be integrated, made more easily understandable for those with no academic background.

9. Good Practice

Visit Reports are now prepared with points of good practice being highlighted for the information of Board Members and Universities. This aspect of reporting was introduced to improve the level of dissemination of good practice observed during JBM Visits. Examples of good practice are shown below. The JBM is very keen to facilitate the spread of best practice and comments are invited.

Abertay University

- The Team highly commend the workplace industrial placement as a semester long embedded module. Students and Graduates all commended this module and those who had just been on their placement found it beneficial and thought it helped to highlight the 'hands on' approach of this IEng course.
- The Team were pleased to see the University involved with the Constructionarium in the 2nd year. Again this was something the students valued. The Team were pleased that the University was able to send the entire cohort so they were all able to benefit.

Queen's Belfast

- Strong links with industry

- Award of QUB Diploma in Professional Practice for students completing industrial placement.
- The use of developed pedagogy to enhance teaching (e.g. 'flipping' lectures)
- 4 –day mock public inquiry
The visiting team was satisfied with the arrangements for teaching communication skills. They felt that the Mock Public Inquiry which takes place across Year 1 and Year 2 in Professional Studies 1 and Professional Studies 2 module was a particularly good exercise.
- The new lecture/group learning space
- The University library, opened in 2010, is well-stocked with good study areas, including spaces for group work. The team was particularly impressed with the new combined lecture theatre/group study area in the David Keir Building which they felt was an innovative use of space.

Brighton University

- High quality laboratory facilities with good access for students
- Comprehensive safety file with risk assessments prominently displayed at entrance to all laboratories
- Provision of additional 'on-demand' support classes
- In-Division provision on Maths teaching
- Excellence in Industry programme.

Bristol, Civil Engineering

- The organisation of the year abroad programmes is exemplary.
- The Design thread is well-developed to show progression from year to year. Projects are based on real life situations. Graduates felt this gave them a clear advantage in obtaining employment.
- Research-based teaching motivates students and provides them with feedback from industrial practitioners.
- The SAFE (Student Administration for the Faculty of Engineering) system is highly valued by staff and students and could be used more widely.
- The leadership of the Strategic Advisory Board is strong and is evidenced by strategic interventions and provides beneficial influence to the delivery of the programmes.

Bristol EAB, Engineering Design programmes

- The multidisciplinary approach to engineering design embodied in the programmes meets an oft quoted demand from industry; few such courses exist in the UK.
- The major projects in the final two years are integrated, though they are assessed separately:
 - the fourth year 'research' project is an individual investigation of a particular aspect of an overall project assigned to a team of students
 - the fifth year team project continues the same topic, integrating and developing the work done individually in year 4.
- The apprenticeship programme for training of new laboratory technician's
- The pro-active response to the issues associated with the teaching laboratories identified at the October 2013 JBM visit

- The Engineering Design partnership (those industrial partners who help the university with the development of the programme)

University of Bristol – EngD programme in Systems Engineering

- This is an excellent example of collaborative provision that works as a joint venture between the two universities (Bristol and Bath).
- The broad range of companies that support the programme and thus the excellent interaction with industry and the fact that students complete industry based projects.
- The innovative nature of the programme and how it has been established is to be commended
- Areas such as the concept of an annual conference and the need to produce academic papers, which provide excellent training for the future careers of the Research Engineers.

Brunel University

- The excellent contribution provided by the three technicians that support Civil Engineering.
- The financial support given by the School to the academic staff seeking to become professionally qualified.
- Excellent input from Industrial Advisory Panel.
- Tutorial space incorporated into the lab areas allows easy movement between 'classroom' style discussion/paper work and practical laboratory experiments.
- The support provided by second year students to first years in the Engineering and Environmental Materials module confers benefits to both groups.
- The Water Treatment Laboratory, including the integration of health and safety in its development and participation by students in the staff away day.

Cardiff

- **The refurbishment of the Trevithick Library and the sponsorship of rooms by leading local companies.**

“Trevithick Library

In January 2009 the Trevithick Library, which supports the Schools of Engineering, Computer Science & Informatics and Physics & Astronomy reopened following a complete redesign and refurbishment. The new library has been enlarged and designed for much more workspace, and emphasis on undergraduate course texts and e-facilities, with older text and journals moved either to a nearby archive or online. Four discussion rooms, seating 6-8 people and each with a plasma screen, are available for students to book. These rooms help to facilitate collaborative project work and provide a space for students to practise presentations. The Trevithick Library won a national SCONUL Library Design award in 2010 and elements, such as industry sponsored areas of the library, were highly praised. Since the last accreditation visit the library's opening hours have significantly increased with facilities available until midnight Monday-Friday and additional extended hours on Sundays to 9.30pm. Library staff provide information literacy sessions which are embedded in modules for both undergraduate and postgraduate courses. This ensures students are provided with the opportunity to gain the skills needed to locate, evaluate and use information appropriately.

Since the last accreditation, information literacy sessions have become a compulsory, assessed part of the second year curriculum for all School of Engineering students.”

- **Flexible working space known as the ENGIN Forum**

The Team were impressed with the ENGIN Forum *“which is a new flexible working space that has been established arising from student comments in a focus-session at a staff Away-day. This £250k investment, jointly funded by the University and the School in a space co-located with the Teaching Office, provides both integrated social and individual and group working space. Representatives of both students and staff across Engineering were involved in the design of this space to help ensure a well-used and sustainable space. Work commenced in the summer of 2009 and the facility was officially opened for use in January 2010.”*

- Students are invited to the staff away day to walk staff through their experience of the degree programmes and are asked to identify issues, good practice and suggestions for change. An example of this collaboration led to the development of the open learning centre.

University College London

- The range and quality of practitioners acting as visiting lecturers to the MSc programme.
- The MSc programme is a very research-led programme.
- There are numerous multi-disciplinary opportunities available to the students.
- The field trips to various European mega projects at a number of European countries are commendable.
- Feedback on the coursework and student work was very good. There were detailed comments and not just standardised responses

Coventry University

- The drawing and sketching components of the course
- Practical amount of laboratory work
- The strong health and safety thread

Areas for the Annual Report

- The CU simulation Centre and the potential there is to develop this further

“The CU Simulation Centre (Virtual Reality Laboratory)

The centre is unique in the UK and was created as a joint venture scheme with industry financial support. It has become a university facility since 2012. The Simulation Centre offers a unique approach to Leadership and Management development; it employs virtual reality technology, highly skilled actors, company specific scenarios and individual site offices that are connected via CCTV to a monitoring room. Our MSc students in module M04BE and MEng students in M16CAB take part in a ‘real-life’ site situation within a completely believable virtual environment. This allows them to ‘learn by doing’ and leads to development and improvement of their responses to specific and controlled scenarios, provides them with constructive feedback on their performance and establishes a clear direction for personal improvement. Using a 12m screen to visualise construction environments, 10 designated site huts, trained actors, the centre creates a ‘4D’ environment where the learner is immersed in an experience which feels like ‘real play’ not role-play.”

- Their approach to working with their international students (January start) thus responding to border Agency and government pressures in a positive and pragmatic way

University of Derby

- The preparation of the dissertation is very good.
- The opportunity for full-time and part-time students to work together has been very beneficial.
- The Civil Engineering Management module is assessed by an oral interview that includes formal “questioning on Health and Safety and Sustainability legal and social issues.”
- There is active promotion of EngTech and professional membership embedded into the FdEng and the Team was able to note that since this scheme has been in operation some 31 candidates have become Eng Tech TMICE, with 9 students taking and passing the Technician Review in December 2012.

Durham

- The Design Tutor scheme that brings in current engineers from the local industry.
- Participation in the Engineers Without Borders scheme.
- Encouraging their students to participate in the “Engineering into Schools” project. ”

Exeter

- Open door policy of staff
- College support for the field trip and associated funding.
- Student mentoring scheme
- Support from local industry
- Low drop-out rate is commendable
- The third year module Engineering in Society provides an introduction to company finance and students are required to produce a simple profit and loss account and will consider the costing of materials.
- The Team felt that the need for students to keep a Log book throughout their degree programme was excellent innovation and the team commended this new initiative which is supported by the members of the IAG and the students.
- Engineering in Society and Company Finance, year 3 module (ECM3130) as a module was good and should be applauded.

Heriot-Watt (Dubai)

- The Team considered the Memorandum of Understanding with Dutco Balfour Beatty, and the resultant activities, to be a commendable feature.

Heriot-Watt

- The Team considered the Independent Distance Learning procedures to be ambitious and robust and agreed that the School were managing this learning route to a very high standard.

Liverpool

- The Engineers without Borders Challenge introduced as an intensive one-week project in Year 1
- Active learning laboratories
- Mentoring by industrialists
- Standard of the Capstone project
- Participation in the ICE pilot scheme for the bulk upload of student members
- The Library catalogue and book stock fund and the changes in the way the Library catalogue can be accessed by students through a search on their module reading lists.

Liverpool John Moores

- **World of Work Programme**

“CPD and lifelong learning are an integral part of all the Civil Engineering programmes. Every year students produce a personal development plan. The University also has its own ‘World of Work’ programme, which gives students a Bronze, Silver or Gold Certificate in addition to their degree. World of Work Certificates are given to students for a portfolio which relates their learning to their future plans for employment. The Bronze Certificate is embedded into level 4 of the undergraduate programmes, and students can continue from this to gain the Silver and Gold. Students who complete all three report that the experience is very useful to them in terms of finding work and developing professionalism.”

Nottingham

- The Constructionarium module offered to Year 3 students.
- The sponsorship of students by industry.

The Team noted from the submission that, since 2004, an undergraduate sponsorship scheme to which five industrial organisations are currently signed up (Laing O’Rourke, North Midland Construction, Sir Robert McAlpine, Royal Haskoning dhv, Vinci) is in place. A small number of students gain sponsorship each year and undertake vacation work which if successful leads to sponsorship thereafter. The Scheme is intended to encourage students who are not already sponsored to apply for sponsorship. The Scheme makes the process more straightforward: students are supplied with information regarding the organisations in the Scheme, can apply to up to three of them by completing a single application form, and can meet the organisations in the Department of Civil Engineering.

Nottingham Malaysia

- **Establishment of an ICE Student Chapter.**

The Team noted from the submission that UNMC has its own ICE Student Chapter (ICESC) in Malaysia and they are one of only two institutions in Malaysia that houses a student chapter. The ICESC is one of the most active student academic societies in UNMC and almost all students are members. Student membership of ICE and its student chapter is strongly encouraged. The society organises a number of academic, professional and recreational activities throughout the year and the ICESC also uses the department as a vehicle to participate in various professional activities like industrial site visits and professional development seminars.

The ICESC also plays an important role in integrating the new students into the university and

they play a role during the Department's "Orientation and Induction" sessions.

▪ **The compulsory Industrial Training Placement.**

At UNMC Industrial Training is compulsory and recognised as an endorsement to the degree certificate. The placement is taken after the completion of Part I and prior to the commencement of Part III of the programme. Any student who does not successfully complete the industrial placement will not be able to progress to Part III of the MEng Degree.

The programme's industrial training requires every student to complete a minimum of 12 weeks of continuous training in an engineering-practice environment, which satisfies the EAC requirement, i.e. minimum 8 weeks. The students are required to keep a record of their experience in the IEM Engineer's Log which is submitted to the University upon completion of the industry training for inspection and assessment.

In addition, UNMC takes a proactive role in visiting / interviewing the students and the participating professional organisations to: firstly, ensure that the students are engaging with the placement; and secondly, to be advised by the professionals about performance and the opportunities for improvement. The participating professional organisations are also required to evaluate the performance of the students with respect to knowledge, intellectual skills, professional and practical skills, etc.

Northumbria

- The positive response that has been made to the last JBM visit report.
- The commitment from the staff to seek professional membership with one of the JBM member Institutions and the support from the Faculty for this.
- All students are given a 'conversational sketch book', to encourage them to build their personal awareness of engineering detailing
- The support of the laboratory technicians

Royal School of Military Engineering

- The excellent feedback to the students, it is exemplary and far exceeds the standard achieved at other Universities.
- This is a very good example of a well-integrated programme of academic learning and professional development.
- Health and safety risk identification and management (both military and non-military) underpins all aspects of teaching and learning. This is probably unique; the JBM team was not aware of a similar approach being taken elsewhere.
- RSME has good links with many major contracting firms in the UK, USA and Australia. This ensures that any placement is of the maximum benefit to the student and is mapped to both learning outcomes and development objectives. (The placement is proactively managed)
- The staff delivering the civil pathway all have an appropriate professional qualification and many are actively engaged with the JBM member Institutions, in particular the ICE.
- The six week 'refresher course' that all students undertake before Phase 1 that allows all students entering the pathway to reach the same base level of knowledge.

- The cautious and responsible way the RSME assesses and manages the students entering the MSc with non-traditional qualifications. The School has linked with an undergraduate provider to develop a six-week long top-up programme which helps students to reach the technical background to permit entry to the MSc programme. This is in addition to the six week pre-enrolment refresher programme and the output reviewed demonstrates that the students are meeting the same Learning Outcomes as their conventionally qualified peers.
- The six 4-day mini projects are based on case studies and are good examples of the integration of engineering theory and practice, with a strong focus on construction, the main theme of the programme.
- The Exercise Tall Storey Design Project and supporting lectures gives the civil engineering students technical broadening in building services engineering
- The teaching labs are extremely well equipped and used when available and also allow the MSc students to understand the capabilities of the junior technical staff who will be under their command and thus allow them the opportunity to manage and instruct appropriately when in the field.
- The quality of the placements was exemplary. (The JBM team members were impressed with the level of support that is provided by the staff to students during placements).
- The blog that the students complete and share whilst on placement

Sheffield

- Advanced research work carried out in the department's laboratories clearly feeds into teaching and there are strong links with final year projects.
- The past and current expert development of building physics within the curriculum ensures teaching and research best practice with regard to the low-carbon agenda recently enhanced by the appointment of the Professor of Engineering Design (Professor Mayfield).
- The personal tutoring guide is detailed, useful and well-written.
- The 'Global Engineering Challenge', which is an excellent way of introducing students to the real world of civil engineering.
- The 'Engineering You're Hired' project gives students opportunities to develop new tools for modern construction and turn these into commercially viable products. The skills learned go beyond engineering and are linked with entrepreneurship and business skills development and the value of IP.
- The Integrated Design Project requires that groups of students build models from a different group's design drawings and communicate through 'requests for information'. It also provides opportunities for reflective review and links to ICE development objectives.
- All MSc programmes culminate in an MSc conference, organised and run in the manner of an academic conference, where students present the results of their dissertation studies as a paper and an oral presentation.

Southampton

- Evidence that labs are used extensively by students
 - The support of the university Language Centre for non-native English speakers
 - Participation in The Constructionarium
-

- All Group Design Projects are co-sponsored by an industrialist

- **The SUCCESS scholarship programme**

The Team was encouraged to learn that one third of students hold scholarships through SUCCESS and QUEST. SUCCESS is a University of Southampton sponsorship scheme. The industrial sponsorship includes an annual bursary, extended summer work placements and a high possibility of long term employment upon graduation. All first and second year Civil and Environmental Engineering students are eligible to apply; the sponsorship normally lasts for three years for BEng students and four years for MEng students.

- **Cameroon Catalyst**

For several years undergraduate students have been involved in projects in Africa. These are developed in collaboration with, and provide infrastructure for, the local population. Groups of students have worked on site to implement the projects but many students are involved in fundraising. Staff also get involved, visiting site as required. The exercise is called the Cameroon Catalyst and the University has named one of its buildings in recognition of the students' achievement.

- **Continued improvement in design and laboratory space at Boldrewood campus**

The teaching labs and workshops were found to be extensive, and with a move to bigger and better facilities at the new Boldrewood Campus in 2014 these facilities are set to improve still further. It was clearly evident that undergraduate students make extensive use of all laboratory facilities across the Academic Unit.

Suffolk New College

- The support for the part-time member of staff who is currently completing PGCHEP.
- The excellent relationship with the Industrial Liaison Group, who are clearly supporting the revised programmes

Teesside

- The new policy introduced by the Dean to encourage staff to gain appropriate professional qualifications in engineering.

- **The Employment Skills Module**

"The final year Employment Skills module (Level 6) also develops confidence in interviewing skills by providing role play job selection interviews in class. Technical interviews are also held as part of the module assessment strategy. Students taking part in the Industrial Placement are partially assessed by a technical interview with two members of staff upon their return to University. Staff signpost students to the Careers Service who offer a mock interview with detailed individual feedback to improve their chances of success at the interview state in their search for full time employment or a suitable placement."

University of South Wales

- The embedding of professional qualifications into the MSc programmes at CEng MICE and into the HNC at EngTech TMICE represents excellent and innovative practice. The range of opportunities for students to progress from HNC through to

Masters level with different modes of study is a considerable strength and is well supported by industry.

University of Ulster and South West College

At the University

- Presentation of MSc dissertation summaries to representatives from the Industrial Panel provides useful experience for students as well as a means of assessing the MSc Annual William Bald Award (£1,500) which is sponsored by Government and industry.
-

At the College

- Strong industry input into work-based learning element of FdSc.

Both

- Good arrangements for transition from FdSc to BEng/MEng.

University of the West of England

- The support provided by second year students to first years in the Engineering and Environmental Materials module confers benefits to both groups.
- Tutorial space incorporated into the lab areas allows easy movement between 'classroom' style discussion/paper work and practical laboratory experiments.

West London

- The open-ended mini-projects now used in many of the modules are considered to be examples of good practice.

University of the West of Scotland

- The Interact project which involves interdisciplinary group work, sponsored by Arup and, more recently, the Institution of Structural Engineers.
- The atmosphere of cooperation and support and the dedication and hard work of the Civil Engineering staff
- The strong thread of design running through the programme
- The teaching of Structural Engineering which is very applicable to the workplace. Many students met by the Team stated that this aspect of the course was outstanding and has inspired them to work in structural design.
- The NSS result which resulted in 100% student satisfaction.
- The field course to the National Construction College which provides very transferable skills and knowledge for the workplace and is consolidated by laboratory work on their return.

Annex No. 2**Details of Membership - 2014****Joint Board of Moderators**

Chairman	Professor S Garrity CEng
Members	<p>Ms S Buck CEng Professor N Buenfeld CEng Mr G Bowring CEng Dr A Crewe CEng Mr L Gentry CEng Ms E Gormley IEng Mr T Gurr IEng Mr J Haynes CEng Mr C Johnson CEng Mr C Onions CEng Dr G Owens CEng Professor J Parkin CEng Mr J Pearson IEng Dr J Roberts CEng Professor D Savic CEng Mr A Silver CEng Professor M Sterling CEng Professor K Viridi CEng Mr P Whitehead CEng Professor A Woodside CEng</p>
Engineering Council Liaison Officer	Professor P Hicks CEng
International Sub-Committee Chair	Professor D Cleland CEng
HLTQSC Chair	Mr C Jones CEng
Further Learning Sub-Comm. Chair	Professor R Lark CEng
Secretariat (ICE)	<p>C Goan K Sharma E Ryan A Stanley</p>
Secretariat (IHE)	C Sullivan
Secretariat (CIHT)	S Stevens
Secretariat (IStructE)	<p>A Brereton D Byrne J Clarke C Hearing</p>

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Mr Phil Brown (Southampton Solent University) IEng
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Mr Brian Duffy (Leeds College of Building)
Mr Graham Ford (University of East London) CEng
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Ms Dora Timar (City and Guilds)
Mr Gregg Wood (Newcastle College)
Mr Gabriel Staples (Pearson - Edexcel)

Secretariat
K Sharma
D Byrne
A Stanley
S Stevens
E Ryan

International Sub-Committee

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Professor B Lee CEng
Mr R McKittrick CEng
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Secretariat
D Byrne
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C Goan
E Ryan
A Stanley

Further Learning Sub-Committee

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Mr McKittrick CEng

Secretariat
C Hearing
C Goan
E Ryan
A Stanley
S Stevens