



## JOINT BOARD OF MODERATORS

### 2011 ANNUAL REPORT

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**1. Chairman's Introduction**

I am very pleased to present the Annual Report to you as Chairman of the Joint Board of Moderators (JBM) outlining the activities that the JBM has been involved with during 2011.

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.

In 2011 we held three very successful pre-visit briefings for Universities based on our new submission requirements and these will be continued in 2012 and updated as we receive feedback from some of you on the use of the new submission documents.

Following feedback from Universities seeking clarification on a number of items relating to the policy to encourage more academic staff to become professionally qualified, revised guidance material has been developed and was circulated to Heads of Departments in February 2012. JBM teams will continue to report back to the Board on any issues regarding the implementation of this revised guidance.

JBM teams are continuing to monitor website wording during their visits and over the last year we have seen considerable improvement on the information on websites and in published material.

The JBM has been pleased to assist the Engineering Council with its monitoring visit by representatives of the Washington Accord by allowing WA observers to observe the re-accreditation visit to the University of Loughborough and to take part in discussion at appropriate JBM Board meetings. The WA monitoring team was led by Jacinta O'Brien from Canada and her colleagues were Jung Soo Kim from Korea and Y-P Chen from Chinese Taipei.

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.

Dr J Roberts

## 2. **Executive Summary**

The Board and its Working Groups and Sub-Committees discussed a number of major policy issues during 2011.

Dr John Roberts is Chairman of the JBM, Professor Clarke is Chairman of the Further Learning Sub-Committee, and Professor Nigel Smith is the Chairman of the International Sub-Committee and Mr Jones of the Higher Level and Technician Qualifications Sub-Committee.

The Board developed and delivered a Business Plan for 2011 and this can be reviewed on the JBM website.

Additional guidance material to support the Further Learning process was developed in 2011 and this is available on the JBM website. [www.jbm.org.uk](http://www.jbm.org.uk).

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

In January 2011 – Professor Dragan Savic (University of Exeter), Professor Bob Kalin (University of Strathclyde), Dr Graham Owens, Sapraha Bhattacharya (Scott Wilson) and Colin Jones (University of Wales, Newport) – Chair of Higher Level and Technician Qualifications Sub-Committee joined the Board.

Mr Colin Smith joined the Board in July 2011 as one of the CIHT's nominees.

In 2011 the JBM undertook 11 full re-accreditation visits and 4 review visits to Universities and the pre-visit briefings continue to be a success

New JBM guidance material has been published that relates to the area of Low Carbon and can be downloaded from the JBM website

At the request of the Nominations and Audit Committee of the Engineering Council representatives from the Society of Operations Executives (SOE) observed the re-accreditation visit to Anglia Ruskin University.

The Health and Safety Annex to the JBM degree guidelines was updated and new good practice guides "Information mining" and "Digital Technologies in Degree Programmes" were produced.

The Visit Report following the visit to the Malaysian Campus of Nottingham University has been reviewed by the International Sub-Committee and the JBM Board and issues addressed. A re-accreditation visit to the University of the West Indies took place at the end of November.

The JBM guidance on website wording is being monitored by visiting teams and the JBM secretariat. It was noted that the various Institution Auditors were also reviewing website

wording as part of the audit process. The Board has agreed that there should be a twice yearly review of all website wording.

The JBM has established a Documentation Working Group (DWG) to review the range of information it requests from Universities prior to a visit and they will also consider if Universities are required to produce an annual report on key activities. Suggestions were made at the October Board meeting on areas that should be included in this Annual Report but these have still to be reviewed by the DWG. The DWG had also considered the possibility of a light-touch audit but it was not clear what this would involve and it was not the intention that there would be two standards of Review and the majority of Board members felt that the standard visit timetable should be maintained. Universities are meant to keep the Board updated on any substantive changes to their accredited programmes and this should also include changes in staffing but not all Universities are doing this.

### **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 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 Dr John Roberts from Jacobs and the next Chair will be from a University.

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 lay down the three core subjects of Materials, Structures, Geotechnics, together with Fluid mechanics and Surveying, suggest optional subjects, and identify 'threads' which run through course design namely, Sustainability, Design and Health and Safety.

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](http://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 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](http://www.jbm.org.uk).

#### 4. JBM Activity In 2011

##### 1 Visits undertaken

Quinquennial Visits (Dates)		Review Visits (Dates)		EAB Visits (Dates)	
Warwick	20–21 January	Heriot-Watt	29 April	Bristol (R)	5 May
Loughborough	10–11 February	Brunel	14 October		
Suffolk New College*	17–18 February	Liverpool John Moores	24 November		
Napier	24–25 February				
University College London	3–4 March				
Edinburgh	10–11 March				
Ulster	6–8 April				
Glamorgan	16-17 June				
Teesside	30 June – 1 July				
Dundee	20–21 October				
Plymouth	27– 28 October				
Anglia Ruskin	17–18 November				
University of the West Indies	21–22 November				

\* Visit covered IEng programmes only

##### 2 Summary of course accreditations

Date of JBM Board Meeting in 2011	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
14.02*	3	-	-	9	-	1	3	-
6.05**	7	1	3	32	-	2	3	-
15.07	3	-	3	7	-	2	2	-
7.10	2	-	12	13	-	2	6	-
Total	15	1	18	61	-	7	14	-

\*This JBM meeting considered a number of visit reports for visits undertaken in October/November 2010.

\*\* This JBM meeting considered a visit report for a visit undertaken in November 2010 discussion on which had been deferred at the request of the University

### 3 Summary of academic programmes Accredited as meeting Further Learning requirements

Date of JBM Board Meeting In 2011	Further Learning for CEng	Further Learning for CEng Rejected	Further Learning for IEng	Further Learning for IEng Rejected
14.02*	13	-	-	-
6.05**	30	-	-	-
15.07	15	-	-	-
7.10	8	-	1	-
Total	66	-	1	-

\*This JBM meeting considered a number of visit reports for visits undertaken in October/November 2011. \*\* This JBM meeting considered a visit report for a visit undertaken in November 2010 discussion on which had been deferred at the request of the University

### 4 Summary of Employer Managed programmes approved as meeting Further Learning requirements

Date of JBM Board Meeting In 2011	Further Learning for CEng	Further Learning for CEng Rejected	Further Learning for IEng	Further Learning for IEng Rejected
14.02*	-	-	-	-
6.05	2	-	-	-
15.07		-	-	-
7.10	1	-	-	-
Total	3	-	-	-

## 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 2011.

- ***Pre-visit briefing for Universities***

A pre-visit briefings were held in 2011 for universities being visited in the period autumn 2011/summer 2012. These briefing sessions allowed university staff to meet with a member of the JBM visiting team.

- ***Notification to the JBM of Staff Changes***

Please note that Departments are required to keep the JBM advised of any major changes since the last visit and this includes not only changes to the curriculum, resources and also staff changes.



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- ***RAEng Report – Engineers for Low Carbon***

A JBM guidance note on this area and updated Appendix C Sustainability were sent out to Heads of Department in November with a note that advised them that this area will be checked at visits from autumn 2012 onwards.
  - ***Publication of two JBM Good Practice Guides: - Information Mining and Digital Technologies in degree programmes***

Two Best Practice Guidance Notes were approved by the JBM Board in 2011 one relates to the area of information mining and the other to digital technologies in degree programmes. These documents are available to download from the JBM website.
  - ***Health and Safety Annex D***

To note that this document has been updated to reflect feedback from John Carpenter of SCOSS. The updated version is available to download from the JBM website.
  - ***Engineering Council Workshops on Academic Accreditation Matters***

Representatives from the JBM member Institutions attended two workshops organised by the Engineering Council, one for members of accreditation panels and another for secretariat staff.
  - ***QAA Consultation on draft reference point for external examining: publication of ‘Changes to the Academic infrastructure: Final Report’***

Two Board members (Professor Smith and Professor Viridi provided comments on the proposals.
  - ***IStructE – Annual Academics’ Conference***

The board received a report on this September conference. The focus for this event was on engagement with industry. The IStructE will be publishing papers relating to the conference which will be added to their website in March 2012.
  - ***Guidelines on the teaching of Surveying***

Following feedback from Universities the Board has revisited this document and an updated version will be submitted to the February 2012 meeting for approval before it is uploaded to the JBM website.
  - ***Website wording***

Dr Roberts advised the ACED meeting in April 2011 that the JBM secretariat had reviewed some 58 websites and looked at some 270 pages to check the wording. This check resulted in 31 emails being sent to Universities ask them to update pages in line with the guidance. Further reviews were undertaken in the autumn which saw a significant improvement in the information available on websites and in undergraduate prospectus information.
  - ***Liaison with the Engineering Council***

The JBM has been pleased to assist the Engineering Council with its monitoring visit by representatives of the Washington Accord by allowing WA observers to observe the JBM re-accreditation visit to the University of Loughborough and to take part in discussion at appropriate JBM Board meetings.

Also at the request of the Nominations and Audit Committee of the Engineering Council representatives from the Society of Operations Executives (SOE) observed the re-accreditation visit to Anglia Ruskin University.

Professor Peter Hicks continues to act as the Engineering Council's Liaison Officer on accreditation matters.

▪ ***Training for Moderators***

Training of new Board members continues to be through on-the-job training during visits and attendance at a briefing session for new JBM Board members.

## **5.2 Undergraduate programmes – comments included in various Visit Reports**

▪ ***Meeting students on an Accreditation visit – possible to change standard JBM visit timetable.***

On some visits the number of students met by JBM visiting teams was very disappointing. The JBM therefore suggest that the visit timetable is used more flexible to enable to students to attend the meeting. For instance in Thursday is a major teaching day and Friday is not it may be more effective for the Team to meet students on Thursday rather than Friday. If such a proposal is accepted then this should be communicated to all universities to ensure they are aware of the change.

▪ ***Health and Safety***

**Three** Visit Reports stated that the health and safety risk management thread must be clearly evident in both the teaching and output. Universities were required to make a follow-up paper submission post visit that confirmed which modules include this thread and how the associated coursework was to be adjusted to specifically incorporate the assessment of health and safety risk management. It was confirmed that it should be evident on future visits that this area has been integrated through the coursework brief, the marking criteria and the student output.

It was suggested to one Department that they appoint a 'Threads champion' (especially to focus on Health and Safety Risk Management) to ensure all JBM threads are explicit in student output, in time for the full visit next year.

Departments should ensure that risk assessments are carried out by students for every lab and that copies of these are kept and in addition that assessments are also included in projects and reports.

▪ ***Health and Safety in Laboratories***

To make Method Statements for use of laboratory equipment available in the laboratories and also use appropriate signage. Departments are reminded that students must wear protective footwear in the laboratories.

- ***Aims and Objectives***

The aims and objectives of programmes should be revised to highlight the strengths of the programme.

- ***CSCS***

Where appropriate Departments should encourage students to gain a CSCS trainee card.

- ***Design***

To review design teaching within the BEng (Hons) programme to ensure a more holistic approach.

A Department was asked to consider changing the marking structure for the 3<sup>rd</sup> and final year design projects to allow marks to be explicitly allocated to the integration of sustainability and health and safety risk management in the design proposals.

- ***Examination Papers/Assessment***

To review examination papers for the final year of the CEng bachelor degrees and the Masters programmes so that questions are more open-ended.

To review the examination questions to enable more critical evaluation of solutions and alternatives at all levels.

To consider allocating marks in projects and appropriate course work for student assessment of sustainability and H&S risk management.

- ***Industrial Liaison Panels***

These should be organised to reflect the JBM guidelines, and the membership should include representatives from the professional bodies and key local organisations. It is suggested that where appropriate the Chair of the Committee should be one of the industrial representatives. These Committees should have a clear strategy and terms of reference. *If Departments wish to see examples of good practice they should contact the JBM secretariat.*

- ***Links with JBM member Institutions***

Some Universities have been asked to strengthen the links with the IStructE, CIHT and IHIE as appropriate.

Departments are reminded that they should continue to support staff to seek professional qualifications and explore ways in which the number of Chartered and/or Incorporated Engineers can be increased within the teaching staff.

- ***Teaching of Materials***

Evidence should be available through student's work that demonstrates that they look at and work with other materials such as timber and steel and not just concrete.

Departments may wish to consider reviewing and strengthening the design thread through the course to increase the visibility to the students of a link between design and geotechnics and materials.

- **Projects**

That criteria for the assessment of the individual projects ensures that the technical element of the project carries a higher percentage weighting than the process elements.

That the assessment criteria of large group-based project work should ensure that the quality of individual student's work is included in the assessment as well as the quantity of their work.

To ensure that the assessment of group works reflects the quality of an individual's contribution to that of the overall group when it is divulged from group marked assessments

- **Site Visits**

Departments are encouraged to make better use of their industrial links to increase the number of site visits available for students and they could consider making some of them compulsory so to maintain a high turnout.

- **Sketching and Drawing Skills**

Departments should monitor the drawing and sketching skills of the students and where possible encourages the incorporation of these skills into projects and exams (hand sketching as well as CAD) they should also ensure that students receive enough guidance and practice to develop these skills.

- **Statistical data**

Graduate employment data should be systematically gathered each year and progression into the construction industry should be monitored.

- **Student Society**

The JBM would wish to encourage where appropriate the development of a Student Society. This is an area that could be delegated to the students to organise.

- **Surveying**

With the publication of the revised JBM guidance note on "Teaching of Surveying in JBM Accredited Degree Programmes", Departments should review in particular the stated aims for these modules, to make sure that the concepts are introduced to students either through a range of modules involving measurement; data collection and evaluation and error analysis or via a compulsory field course in surveying.

- **Sustainability**

To review the way that the theme of sustainability is embedded in the Civil Engineering undergraduate degree programmes to ensure that it is more explicit.

- **Virtual Learning Environment**

That more use is made of the VLE system being used by Universities by all staff.

- **Website wording**

A number of visit reports stated that the Department had to update website wording to reflect the JBM guidance document sent to Universities in September 2010.

### 5.3 Activities for 2012 JBM main Board

In 2012, the following areas are to be considered by the JBM: -

- To work with the Institution of Civil Engineers, Information Systems Panel and the Chartered Institution of Building Services Engineers on the development of its guidance note for Universities on BIM.
  - To work with the Sustainability Panel of the Institution of Civil Engineers to produce more detailed guidance for teaching staff and the dissemination of good practice in the area of sustainability.
  - To undertake 9 full accreditation visits, 6 review visits and to participate in 2 EAB visits.
  - To review the reports produced by the Further Learning Sub-Committee on the audit visits to organisations offering Employer Managed Further Learning programmes.
  - To review the submission documents following feedback from Universities and Team Members following their experience of JBM visits in 2011.
  - To issue guidance to Heads of Department on how they should be interpreting the JBM's policy on the need for academic staff to become professionally qualified.
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- ***Good Practice Workshop on the teaching of sustainability***  
Following the successful event held in September 2011, ThinkUp have been commissioned by the JBM and the RAEng to produce some further guidance material.
  - ***JBM Submission Documentation***  
The Documentation Working Group will continue to monitor any feedback from JBM team members and Universities to the JBM secretariat on any issues both good and bad following their experience of using the revised documentation.
  - ***Monitoring of University websites***  
As part of their visit activities the Visiting Teams will continue to check the wording on University websites to ensure that this is in line with the published JBM guidance material. The JBM auditors will also continue to review the wording on the websites associated with the visit reports that have been chosen for audit by the JBM Audit Panel.
  - ***IStructE Working Group on the Teaching of Structures***  
The WG is Chaired by Graham Owens and had been established following feedback from employers that graduates understanding of structural behaviours was not as good as it should be. The WG is identifying the essential areas that they believe should be taught to all students and their draft report has been published in the IStructE Journal to elicit feedback. Information has also been provided to the Structures Panel of the ICE (John Roycroft and Maisie Wong) and Professor Bob Lark (Cardiff and ACED) is also a member of the WG.

The WG is aiming to identify good practice to see how structures can be taught more imaginatively and they are also looking to organize a series of workshops in 2012 with the development of essential texts for use by Universities.

Possible future areas that could be looked at in the same detailed way are materials and geotechnics with the aim of providing guidance material on how these areas can be taught.

- **JBM website**

It was noted that plans are in place for a major review and renewal of the JBM website to allow easier editing and the development of a secure member's area that would also allow materials for a particular accreditation visit to be uploaded to the website and accessible by team members. This review will also consider a 'Moodle' VLE platform.

## 6. International Sub-Committee (ISC)

Two meetings of the International Sub-Committee were held in 2011. Thanks are expressed to Mr Richard Eastwood and Mr Bill Askew who completed their time on the ISC in January 2011 and to Mr Colin Smith who joined the ISC in July 2011 and took up a position in November in [Qatar and will continue as a corresponding member](#)

Professor Viridi has agreed to be a corresponding member of the ISC and will attend meetings if he is in the country at the time.

### 6.1 Summary of policy items

- **China**

The recognition agreement between the JBM member Institutions and the China National Accreditation Board was signed in China in December by Professor Plank (President, IStructE) on behalf of the JBM and its member Institutions.

- **Russia**

The accreditation agreement with the Russian International Accreditation Board (RIAB) is now in abeyance. The RIAB were not previously working towards membership of the Washington Accord, however the Russian Association for Engineering Education (RAEE) has provisional membership of the Washington Accord to accredit all types of engineering programmes.

- **Sri Lanka**

Requests for the re-accreditation of civil engineering related programmes have been received from the University of Moratuwa and the University of Peradeniya. This application will be discussed by the International Sub-Committee in February 2012.

- **Washington Accord**

**Turkey** - Represented by MUDEK (2011) have become members of the Washington Accord and any students starting an accredited degree (autumn 2011) onwards will meet the educational base for a Chartered Engineer.

- **West Indies**

A request for the re-accreditation of degree programmes at the University of the West Indies (Trinidad) was received and two staff members attended the pre-Visit briefing session held in

July 2010. The re-accreditation visit took place in November 2011. The Visit Report will be discussed by the Board in early 2012.

### ***Policy Items***

- The ISC has reviewed and amended the process for the appointment of international team members by the ICE and the IStructE.
- The ISC has reviewed the guidelines for Universities with an off-shore campus.

## **6.2 Summary of issues following visits to universities**

### ***Issues to do with courses offered at two Campuses***

- It is a requirement that the examinations are made identical at both campuses.
- The student experience should be as similar as possible at both campuses.
- Each campus should have an Industrial Advisory Committee and the experience and views of the committees should be shared and integrated each year.

## **6.3 Activities for 2012**

- To review the Visit Report following the visit to the University of the West Indies and any associated policy items.
- To review the processes and procedures for conducting international visits in light of recent experience.
- Co-ordinate joint JBM visits to both the UK and international campuses with some common team membership.

## **7 Higher Level and Technician Qualifications Sub-Committee**

The Sub-Committee met twice in 2011 and agreed to continue to develop and maintain a list of approved programmes for EngTech registration. The updated list is available on the JBM website.

### **7.1 Summary of policy items**

#### ***The Advanced Apprenticeship in Technical Supervision***

The Advanced apprenticeship in Technical Supervision which is part of the Construction Technician, Supervision and Management qualifications framework, reference FR00709 was approved as meeting the educational base for EngTech registration.

#### ***Guidelines for Foundation Degrees***

The existing guidance document on Foundation Degrees had been reviewed by the HLQSC and it was agreed that the wording that related to the number of credit that should be gained for work based learning should be changed to say normally 60 credits with a minimum of 30 credits. The Mathematics Annex will also be updated to remove a reference to the nominal threshold of 40% as an overall pass and to emphasise that mathematics teaching should be embedded where appropriate.

Another area of discussion related to issues that could be faced by members of the Sub-Committee when they are asked to consider the accreditation of a Foundation Degree from a College that has no formal articulation arrangements in place that would allow graduates from these programmes to enter onto an accredited bachelor degree programme. It is completion of the bachelor degree that will satisfy the educational base for an Incorporated Engineer. The Sub-Committee agreed that on such visits they will wish to explore the articulation arrangements for these graduates in detail.

It was noted that Foundation Degrees in Construction/Construction Management may also meet the educational base for Eng Tech registration. The Sub-Committee has asked the JBM Secretariat to contact all Institutions offering such qualifications to advise them that accreditation of these programmes would be possible.

## **7.2 Activities for 2012**

In 2012 the Sub-Committee and the Board will be: -

- Monitoring the number of candidates coming through the ICE apprenticeship scheme and those following the embedded technician option supported by the ICE.
- Monitoring and contributing to the development by Edexcel (Pearson) and the City and Guilds of Level 6 qualifications.

## **8 Further Learning Sub-Committee**

The Further Learning Sub-Committee has three main roles: -

- (a) To design, implement, monitor and improve guidance for Universities offering accredited further learning programmes of study both in the university and also work-based; organisations offering employer managed programmes and trainees following a self-managed option;
- (b) To support and audit employer managed programmes;
- (c) To provide guidance on these processes to organisations offering these options and this includes support staff such as the ICE's Membership Development officers.

The Sub-Committee has met these objectives over the last year by publishing an article in one of the ICE's journal's to promote these processes; organised a briefing session for the ICE's Membership Development Officers and Regional Directors in January 2011, undertaking a monitoring meeting to Cambridgeshire County Council and by organising a briefing session for companies in the summer.

### **8.1 Summary of policy items**

- ***Approval of Further Learning programmes***  
During the past twelve months the Sub-Committee has continued to approve company and university proposals for schemes of Further Learning.



- ***Development of M Level Learning Outcomes***

Learning Outcomes for graduates completing an accredited MSc programme have been issued by the Engineering Council. Professor Lark (Further Learning Sub-Committee) and Professor Cleland (IStructE) were members of the Working Group that developed this guidance document. Professor Lark advised the FLSC meeting that these were generic documents that would be applicable to both technical/non-technical masters programmes, work-based learning programmes offered by universities and industry, trainees following self-managed options and also potentially by candidates and their mentors who are using the Technical Report option to gain a professional qualification and registration with the Engineering Council at CEng level.
- ***M Level outcomes Matrix***

The FLSC have produced a draft matrix that highlights the M level Learning Outcomes that must be completed by graduates with a BEng (Hons) degree and those with an IEng degree i.e. technical and non-technical masters level learning. A workshop was held in July to review the Engineering Council's draft Learning Outcomes for MSc programmes and to develop some worked examples to aid students and graduates who will need to complete some Further Learning to meet the CEng educational base requirements. Members of the ICE Academic Qualifications Panel, the Further Learning Sub-Committee and representatives from companies offering Work-Based Further Learning Programmes were invited to attend.
- ***Individual Case Assessment required for IEng graduates and holders of non-accredited bachelor degrees***

Universities and companies are reminded that MSc graduates that hold non-accredited bachelor degrees must be assessed via the individual case route operated by the JBM member institutions. This also applies to holders of IEng accredited bachelor degrees who should be advised to take a technical MSc if they wish to meet the educational base for a Chartered Engineer. Candidates should refer to the guidance on the JBM website.
- ***Examination Papers***

The need to review the examination papers for the final year of the CEng bachelor degrees and the MEng and other Masters programmes so that questions are more open-ended to ensure that students are assessed on their ability to apply their knowledge.
- ***External Examiner***

To consider appointing a separate External Examiner for the MSc programme.
- ***Module Content***

The need to update some of the MSc modules to ensure that they are relevant and reflect current commercial practice. This review may mean that some of the existing taught material at M level should be covered in the final year of the BEng (Hons) degree.

- **Programme Specifications**  
To redraft the programme specifications and module specifications of technical MSc programmes so that the taught technical content is increased, with the examinations set at the appropriate level and reflecting the increased technical content.
- **Published Guidance material must be correct**  
The need to update programme literature to ensure that the Further Learning requirements for BEng (Hons) graduates and MSc students with non accredited first degrees are accurately addressed.

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

- Cambridgeshire County Council
  - Carillion plc
  - Costain
  - Dawnus Construction Ltd
  - BAM Nuttall
  - Jackson
  - Kier Construction
  - PWD Brunei
- 
- **Good Practice**  
The audit visit process to organisations is continuing and this has enabled the Sub-Committee to identify areas of good practice such as that listed below: -
    - Use of in-house ILM accredited Management Diploma to fulfil allied learning outcomes.
    - Assignment of candidates to varied projects to facilitate broadening and deepening of engineering knowledge.
- 
- **New approvals in 2012**  
Following visits or reviews of paper submissions some 66 MSc programmes were approved during 2011 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: -
    - City University
    - Edinburgh University
    - Edinburgh Napier University
    - Imperial College
    - Loughborough University
    - Nottingham Trent University
    - University College London
    - University of Bath
    - University of Birmingham
    - University of East London
    - University of Glamorgan

- o University of Southampton
- o University of Teesside
- o University of Ulster
- o University of Warwick

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

### **8.3 Activities for 2012**

In 2012 the Sub-Committee will be concentrating on the need to provide more focused guidance for candidates using the self-managed option.

## **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 and more detailed examples are listed in Annex 1 and a contact name is provided if more information is required. The JBM is very keen to facilitate the spread of best practice and comments are invited.

### **Anglia Ruskin University**

- Students undertaking CSCS tests in first year.

### **University of Bath**

- The integration of architecture and civil engineering into a single department has clear benefits for students of either discipline.
- The enthusiasm and support of the Industrial Liaison Panel. The innovative use of email discussions within the Panel allows for issues to be dealt with more immediately than may be the case if they had to wait for a meeting to be arranged.
- The use of leading practitioners in delivery of modules is appreciated by students who are exposed to “passionate” lectures delivered by experts.
- The Sir Basil Spence project brings together the architects and engineers and gives them an opportunity to explain and defend their design choices in the face of scrutiny by industry experts.
- The excellent learning environment and good relations between staff and students.

### **Brunel University**

- The excellent quality of the Level 5 projects.
- The excellent level of input from the Industrial Advisory Board.
- The Civil at Brunel website, which aims to ease the transition into student life through staff blogs, video tutorials and web chat.
- The level of support and dedication provided to students and in striving to meet the mission statement for the Civil Engineering group.

**University of Dundee**

- The final year MEng Design project for its use of 'live' data, industrial engagement and cross-disciplinary working. It is industry and research-led and has professional engagement with architects mentoring students and presentations to the local ICE branch.
- The Software for Engineers module (Excel programme for a Dredge Bridge) as a vehicle for developing creative thought and problem-solving.
- Students are well-prepared by Careers staff.
- The Internal Programme Review Reports and procedures are strong with an evaluative and self-critical approach fully embedded.

**University of East London**

- The diversity in background and age of students.
- The flexibility of the various study modes to cater for the lifestyle choice of the students and the particular local needs.
- The significant investment in real estate.
- The support for staff development as evidenced by their CPD records.
- The Skills modules particularly in Level 1.
- The Programme Review process that involves all members of staff and also considers feedback for the students and the External Examiners.
- The commitment from the ILB.
- The extensive range of site visits.
- Participation in the Constructionarium and the additional field course in the areas of surveying and geotechnics.

**University of Glamorgan**

- The documentation was clearly presented and received in good time.
- The student output was clearly displayed and set out, with the threads particularly well referenced making it very easy for the Team to locate what they were looking for.
- Network 75 is a good combination of Industrial Experience and study and also lessens the financial impact for students.

**University of Loughborough**

- The vertical integration of research activities
- Industrial placement scheme.
- The Student Society that aims to promote student participation in a range of activities including the introduction of a peer monitoring scheme to support first year students and the promotion of site visits.
- The teamwork and leadership module (CVDO17) that has been rolled out across the LU faculty of engineering for other MEng programmes.
- The library facilities, especially the specialist facilities based in the WEDC building, but available to WEDC students, and others in the department.
- The extensive and constructive feedback given by the WEDC staff and John Dickens on students' coursework and also for WEDC on the Timed Assessments (in-class examinations).

- The willingness of the University to continue to provide support for the engCETL, a unique resource that has been of great benefit to the engineering departments in a number of universities. Now termed the Centre for Engineering and Design Education.
- The five minute presentations from staff that outline the Part C optional modules to enable students to make a more informed choice about these.
- The outreach projects and the involvement with Engineers without Borders and the Student Union's Action team who support participation in events such as STEM.
- The publication of the Final Year Project papers as a conference proceedings

**University of Nottingham, Malaysia**

- The Team commented favourably on the new facilities, the supportive nature of the staff and the 12-week industrial placement which is compulsory for all MEng students.

**UCL (University College London)**

- The possibility of an incremental salary increase or special payment to academic staff once they have become professionally qualified.
- The significant research facilities that are clearly used for undergraduates.
- Participation in the Constructionarium.
- The Manual for Undergraduates that included information on routes to gaining a professional qualification post-graduation.
- The teaching of design especially the drawing and sketching skills of the students.
- The range of field courses.

**University Campus Suffolk**

- UCS has excellent links with local industry.

**University of Warwick**

- The handbook and annual report for the staff-student liaison committee;
- The very clear guidance provided in the BEng(Hons) and MEng project handbooks;
- The Forensic Engineering module;
- The African Field Course module;
- The contributions from the Industrial Advisory Panel including input to the final year MEng Group projects;
- The open-days and the interview process; these have encouraged a number of students to come to Warwick to study engineering.
- The learning support facilities such as the Learning Grid and the IT and Library facilities;

**University of the West Indies**

- The Capstone Design Project
- Training of Laboratory Technician Staff
- Support for staff to achieve a professional qualification with one of the JBM member Institutions.
- The work and aims of the Engineering Institute to provide CPD support for local practising engineers.
- The Construction Management programme that actively encourages students to aim for chartered status by using the format of the ICE Personal Development Objectives in the assessment criteria.

**Annex No. 1****More detailed examples of good practice****University of Edinburgh**

*Dr Martin Gillie, Head of Civil & Environmental Engineering Discipline  
School of Engineering & Electronics, University of Edinburgh, William Rankine Building,  
Edinburgh, EH9 3JL*

Tel: Tel +44 131 650 7204, Email: [M.Gillie@ed.ac.uk](mailto:M.Gillie@ed.ac.uk)

**▪ Sustainability Conference.**

The Sustainability Conference was introduced in 2005 to allow the breadth of the subject area to be explored and to avoid restricting the knowledge learnt to that of the academic staff. The conference is introduced in the sustainability module in year three which enables students to bring together knowledge that has been accumulated through the early years of the programme and packages this together with more formal instruction in sustainability issues as well as external viewpoints from contractors, clients, designers etc. However, it is recognised that as yet there are no unified theories of sustainability and, perhaps more significantly, there are an almost infinite number of examples and applications of sustainability in engineering. Students are put in to groups of five or six and encouraged to define a sustainability problem for themselves. In the early weeks of the semester they develop an annotated bibliography of their chosen subject and then towards the end of the semester will develop a poster. This poster is then presented at the sustainability conference to which many people are invited – all academic staff in the school as well as external contributors and interested parties. The advantages are clear – students get very enthused about their own chosen subject; they investigate it deeply and understand more about what sustainability actually means; they get to view other student groups' work and so their knowledge is broadened; they appreciate the nature of an academic conference and they learn skills in presentation and public speaking.

**▪ Thesis Web Poster.**

Dissemination posters have been part of the honours thesis for many years but for approximately 10 years the students have been required to develop not a physical poster but a small website at an early stage in their projects. The website is expected to define in detail what the problem that the students are investigating actually is and indicate what their aims and measurable objectives are. The website will indicate the programme of research for the following five months and will include early background literature reviews. The advantages are: students are required to focus on the definition of their project and their plan of implementation; they have to communicate this to their supervisors and other assessors, as well as other staff and students; they can easily introduce their work via their website to other stakeholders in their project; they can use their website to keep these stakeholders informed of progress as well as disseminate final research outcomes; they can include their website address on CVs so that potential employers can see their work; they gain skills in web and html authoring, skills which have increased in relevance and usefulness over the course of the last ten years. The web poster is done in pairs and is the only part of the thesis project work which is assessed as a joint effort.

**University of Glamorgan**

*Professor S.J. Wilcox, Professor of Intelligent Systems Engineering, Head of Department of Engineering, Faculty of Advanced Technology, University of Glamorgan, Pontypridd, Wales, U.K. CF37 1DL.*

*Tel: +44 1443 482810 ; E-mail: [sjwilcox@glam.ac.uk](mailto:sjwilcox@glam.ac.uk)*

- **Centre for Engineering, Research and Environmental Applications (CEREA).**  
CEREA has a mission to facilitate collaborative links with industry and the business world and more specifically to provide high quality short and long-term research based solutions to local, national and international organisations. The projects carried out by CEREA are used as real life examples in the teaching programmes, and in particular, the student projects.

Students and staff benefit greatly from the integration of commercial research alongside the programmes of study. CEREA also has direct employees who are not lecturing staff at the University. Local Industry readily uses this facility and does not consider it a threat. University staff are still subject to the terms and conditions on their research availability from the University, but there is good support from the management of the University for staff to be able to be part of such work outside the University.

**University of Loughborough**

*Professor A Thorpe, Department of Civil Engineering, University of Loughborough, Loughborough, Leicestershire LE11 3TU*

*Email: [a.thorpe@lboro.ac.uk](mailto:a.thorpe@lboro.ac.uk)*

- **Module D014 Development Project**  
This is based around the annual ICE Communications Competition. “The aim of the module is to introduce students to the wide range of strategies and techniques needed to develop and present a viable solution to a proposed development that impacts on a local community, with the associated conflicting engineering, social, environmental and economics requirements. Students, working in groups of 4 or 5, choose one of 5 scenarios for the basis of their project.
- **Operation of ICE registered Company Approved Scheme**  
The operation of an ICE registered Company Approved Training Scheme for post-doctoral students.
- **UCAS Visit Days**  
The Department runs 9 UCAS visit days per year for Civil only and “during the visits, applicants meet each other during a group design and build exercise, have lunch with current students while parents have lunch with staff, visit typical accommodation, attend presentations by the programme tutors, tour the department and associated laboratories (observing the testing of large reinforced concrete beams in the laboratory) and campus with current students. The visit concludes with the testing of the models built by the applicants during the group exercise at the start of the visit and this has proved popular with potential students.”

**UCL (University College London)**

*Professor N A Tyler CBE MSc PhD CEng FICE FRSA ARCM, Department of Civil and Environmental Engineering, University College London, Gower Street, London, WC1E 6BT*

E-mail: [n.tyler@ucl.ac.uk](mailto:n.tyler@ucl.ac.uk)

**▪ Participation in and support for Engineers Without Borders**

Through involvement with the Engineers Without Borders (EWB) students have taken part in projects in Peru (2009 and 2011), Mozambique (2010) and a group is intending to go Mexico this summer (2011). The EWB Committee organises guest speakers, socials and if possible appropriate site visits such as a trip to a landfill site.

**▪ The Tutors guidance document**

All students are allocated a personal tutor who is a member of the academic staff and UCL have developed a guide for Tutors that includes some suggested activities for year 1 and year 2 tutorials and it is circulated to tutors before the start of each session. The JBM team agreed that this guide is an example of good practice and Professor Tyler has agreed to allow this guide to be uploaded to the JBM website for the information and use by other Universities.

**▪ The public inquiry exercise**

This is undertaken by students at the end of the first term in Year 1, as part of the context theme, this introduces the students “to issues raised by a large engineering project, taking a real project as an example. The students are introduced to the project by the practitioners who actually led it and are required to work in teams to generate the proofs of evidence for promoters, supporters or objectors. These have to be presented at a mock Public Inquiry, chaired by a professional Planning Inspector. The oral and written submissions are reviewed by the professional team, the Planning Inspector and the Academic member of staff responsible for the activity, including their ability to express themselves and to present a brief in public.”

**▪ The range of field courses, especially the Walking Tour: Engineering Landmarks in London.**

“During the first week of term one, first-year students are guided on a walking tour to observe some notable engineering landmarks on the South Bank of London, these include the Shell Building, the London Eye, Waterloo Bridge, Hungerford Bridge, Victoria Embankment, Westminster Bridge and the Institution of Civil Engineers.

The whole tour takes about two hours and is guided by UCL staff who point out the history and principal features of both the Victorian and more recent construction. Students are particularly encouraged to make notes and sketches, and to try to explain the structural forms on view. Following the tour the students are required to produce a short (800 words) report on the engineering aspects of one of – Flood protection in London, Waterloo Bridge, the London Eye, Westminster Bridge, The Thames Tideway Tunnel – in a form suitable for a general reader, relating to the field trip.”



**University of Plymouth**

*Professor M Neil James, Head of School, Associate Dean of the School of Marine Science & Engineering University of Plymouth  
Drake Circus, Plymouth PL4 8AA*

*Tel: +44 1752 586 021, email: [M.James@plymouth.ac.uk](mailto:M.James@plymouth.ac.uk)*

**▪ H&S packs**

The Team was very impressed with the University's H&S induction and the policy of students purchasing personal protective equipment, as standard. This equipment must be worn in all lab classes and on site visits and field trips. The Team commend this early introduction to the importance of health and safety risk management.

**▪ Staff professional qualifications**

The Team was extremely impressed by the number of staff who were professionally qualified and the support they appear to receive from the School, Faculty and the University. The Team members noted that Plymouth was the first in their experience to meet the JBM's 2012 target of having 50% of staff professionally qualified.

**▪ IAC involvement with projects**

The Team was impressed with the involvement the IAC have with the student's final year projects. The interview that members of the IAC conduct as an interim assessment within the final year project seems to provide invaluable feedback to the students, not only for the completion of their project but in preparing them for industry on completion of their course.

**University of Ulster**

*Professor G Lloyd, Room 04D10, School of the Built Environment, University of  
Ulster, Jordanstown campus, Shore Road, Newtownabbey, Co. Antrim, BT37 0QB*

*Phone: +44 28 9036 8288, Email: [mg.lloyd@ulster.ac.uk](mailto:mg.lloyd@ulster.ac.uk)*

**▪ The Telford Society**

The Team were very impressed with the University's Telford Society (which also conducts meetings at South West College for the FdSc students). The Telford Society offers significant opportunity for students to engage with the civil engineering profession through a structured CPD programme presented by practicing professional engineers. At a social level, the Institution of Civil Engineers (ICE) is promoted through a series of events organised by the ICE graduates and students Committee (Northern Ireland Branch).

The Telford society is run every Tuesday during term time and, as well as visiting professionals, offers students the opportunity to gain interview and other communication skills they will find useful on completing their course. There is also a meeting concerned with examination preparation which the students expressed they were looking forward to and anticipated would be useful ahead of their end of year exams. The students confirmed that this was a very valuable resource of information and helps develop their skills and broaden their knowledge whilst they study.

**University Campus Suffolk**

*Ms Natalie Chaplin, Head of Automotive, Construction and Engineering Services,  
Suffolk New College, Ipswich, Suffolk, IP4 1LT*

*Tel: 01473382205, Email: nataliechaplin@suffolk.ac.uk*

**▪ Work Based Learning**

The work based learning modules provide an excellent way to correlate learning with real life practice.

The JBM Team were impressed by the work based learning modules designed to develop application of academic knowledge to simulated realistic work place applications.

This approach to work based learning is used to embed learning outcomes which relate to the work place as distinct from academic skills and knowledge. It involves maintaining a tripartite relationship with employers, students and the colleges. The module assessment will reflect this approach and development of work based practice will be enhanced by the use of guest speakers for specialist areas, the use of employers to present a lecture on a particular topic. Site visits should also support the development and appreciation of the 'practicalities' of the workplace.

**Annex No. 2****Details of Membership - 2011****Joint Board of Moderators**

Chairman	Dr J Roberts
Members	Mr S Bhattacharya Mr G Bowring CEng Mr M Dickson CEng Mr T Edmunds IEng Mr L Gentry CEng Mr T Gurr IEng Professor T Ibell CEng Professor R Kalin CEng Professor D Lloyd-Smith CEng Mr E McCann CEng Mr F Montgomery CEng/Mr C Smith CEng Dr G Owens CEng Professor J Parkin CEng Dr D B Reid CEng Professor D Savic (CEng) Mr S Spender IEng Dr D R Twigg Professor K Viridi CEng Professor G Parke CEng
Engineering Council Liaison Officer	Professor P Hicks CEng
International Sub-Committee Chair	Professor N Smith CEng
HLTQSC Chair	Mr C Jones CEng
Further Learning Sub-Comm. Chair	Professor B G Clarke CEng
Secretariat (ICE)	Mrs C Goan Mrs K Sharma Ms E Ryan Mr A Stanley
Secretariat (IHIE)	Mrs M Maguire Ms J Walker
Secretariat (IHT)	Ms S Stevens
Secretariat (IStructE)	Mr A Brereton Mr D Byrne Ms C Hearing Ms K Littler

**Higher Level and Technician Qualifications Sub-Committee**

Chairman  
Mr C Jones CEng  
Mr Phil Brown (Southampton Solent University) (IEng)  
Ms Ruth Wright (Engineering Council)  
Mr Graham Ford (University of East London) (CEng)  
Ms Dora Timar (City and Guilds)  
Ms Jane Grant (WSP Group)  
Ms Kath Skillern (Edexcel)  
Mr Lou Haughton (South Thames College)

Secretariat  
K Sharma  
D Byrne  
A Stanely  
S Stevens  
J Walker  
E Ryan

**International Sub-Committee**

Chairman  
Professor N Smith CEng  
Professor D Cleland CEng  
Mr C Smith CEng  
Professor K Viridi CEng  
Professor B Lee CEng  
Mr R McKittrick CEng  
Professor D Nethercot CEng  
Dr C Williams CEng

Secretariat  
D Byrne  
C Goan  
E Ryan  
A Stanley

**Further Learning Sub-Committee**

Chairman  
Professor Clarke CEng  
Mr I Cross CEng  
H McIntyre CEng  
Mr K Howatt CEng  
Professor R Lark CEng  
Dr D Easterbrook CEng  
Mr E Hewitt CEng  
Mr J Ingle CEng  
Mr S Spender IEng  
Mr McKittrick CEng

Secretariat

D Byrne/C Hearing  
C Goan  
M Maguire  
E Ryan  
A Stanley  
S Stevens