



The Institution of  
**StructuralEngineers**



## **JBM Annual Report 2018**

### **Introduction**

This report summarises the JBM's activity during 2018, including visits undertaken, items discussed, decisions taken, and documentation produced.

#### **A JBM Governance**

##### **A1 JBM terms of reference (TOR)**

The Institution of Civil Engineers (ICE), the Institution of Structural Engineers (IStructE), the Institute of Highway Engineers (IHE), and the Chartered Institution of Highways and Transportation (CIHT) established a Joint Board of Moderators (JBM) to co-ordinate accreditation activities for educational programmes in the civil, structural, transportation and associated engineering disciplines within the built environment sector.

The JBM is licensed by the Engineering Council (EngC), the UK's regulatory body for the engineering profession, to accredit degree programmes that partially or fully satisfy the academic requirements for Incorporated Engineer (IEng), or Chartered Engineer (CEng). They are also licensed by the EngC to approve qualifications that fully satisfy the academic requirements for Engineering Technician (EngTech) registration.

##### **A2 [JBM Board Members](#)**

Chair: Nick Russell, BSc (Hons), CEng, FIMStructE, FICE, F.ASCE, MCM1  
Director, Thomasons Ltd Term of office: three years (2017-2019)

The following new members were welcomed to the JBM Board's October 2018 meeting:

- Martin Gillie, Warwick University
- Gordon Brown, West Lothian Council ,

The following ended their terms of office with the JBM Board:

- Adam Crewe, University of Bristol
- Sarah Buck , BSW Consulting
- Stephen Garrity, University of Leeds
- Ellie Gormley, Telford & Wrekin Council
- Charles Johnson, Atkins Global
- Clive Onions, Consultant
- Mark Sterling, University of Birmingham

The term of office for JBM Board members is normally three years, but members may serve up to two consecutive three-year terms. In certain circumstances, a member may stay on the Board if their particular experience and knowledge is essential to the functioning of the Board.

- A3 Discussion Topics
- REF 2021
  - Website wording
  - Professional qualifications policy and guidance
  - Charging for JBM accreditation visits
  - Inclusion in Engineering
  - Apprenticeship Degrees
- A3.1 Update on REF 2021
- ICE submitted 31 nominations to be considered for the REF Engineering Panel and Panel membership was announced in March 2018.
  - Panel B Sub-Panel 12 Engineering will be chaired by Professor John Clarkson University of Cambridge and membership of the panel for the criteria phase includes Muhammed Basheer (Leeds), Oubay Hassan (Swansea) and William Powrie (Southampton).
  - Membership of the panel for the assessment phase includes Tim Ibell (Bath), Abigail Bristow (Surrey) and Kevin Cullinane (University of Gothenburg).
- A3.2 Website wording
- In reviewing process and documentation relating to accreditation visits, the JBM Audit Panel noted that some university websites record JBM-accredited programmes as accredited by the JBM or the Engineering Council; some refer to accreditation by all JBM professional engineering bodies (PEBs); and others make reference to only one or two of the Professional Engineering Bodies – mainly the ICE or IStructE, often CIHT, but seldom IHE.
  - The Board confirmed that the existing website wording is still in place which references all four JBM PEBs and requested that when accreditation wording is reviewed by the audit panel, JBM visit teams or JBM secretariat this is the wording they should see.
  - The Board also agreed that it is not a non-conformity of the accreditation process if the Audit Panel agree that website wording is wrong but they would expect the HEI to be contacted to ask them to use the correct wording and reference all 4 JBM PEB's.
- A3.3 Professionally qualified teaching staff
- The Board agreed that the 50% rule of academic staff being professionally qualified should continue but significantly more emphasis should be put on peripheral information received from the universities. If the number of professionally qualified staff at the university is less than 50%, this should be investigated at the visit. Further guidance on this will be published in 2019.
- A3.4 Charging for accreditation visits
- The parent institutions of the JBM agreed to introduce a new annual charge from September 2019 onwards to support the JBM's accreditation activities. The new fee will provide a secure basis for supporting accreditation activities and responding to the demands of an increasingly complex education landscape in the UK. It is a decision that has not been taken lightly and the Institutions are not the first to have introduced such charges.
- A3.5 Inclusion in Engineering
- Dawn Bonfield made a presentation to the JBM Board that focused on the topic of Inclusion in Engineering and how this is related to accreditation and she advised the Board that the areas she would be discussion ie the ethical need for diversity and

inclusion is likely to be an addition to AHEP and UK-SPEC in its new versions. The accreditation process will need to acknowledge and understand this growing area of our discipline and be aware of what best practice looks like, what to look out for and how to make suitable recommendations for improvement. Dawn suggested that the topic of inclusion could be considered in three ways: Inclusive 'Engineering', Teaching and Learning and Departmental Culture. It was agreed that the JBM visit team checklist could be changed to record this information and that it would be beneficial for all universities to hear Dawn's update on this area and that Neil Tsang (incoming Chair of ACED) will invite Dawn to make a presentation at the ICE/IStructE/ACED Heads of Department meeting in 2019.

#### A3.6 Apprenticeship Degrees

The second presentation was from Ellen Ryan and Neil Tsang and focused on the area of Degree Apprenticeships. Ellen outlined the situation to date in terms of Universities offering apprenticeship degrees in England, Scotland, Wales and Northern Ireland and referenced the new Guidelines for Apprenticeship Degrees that have been developed by the JBM and areas that visiting team members needed to check when they were reviewing such programmes for accreditation. Neil's presentation gave an overview of the apprenticeship degree programme that had been developed for delivery at Coventry in collaboration with the Technician Apprenticeship Consortium and the similar contractors group that had been led by Tony Ellender of Balfour Beatty. Neil also identified issues being faced by Coventry in delivering this programme especially regarding employer engagement. It was agreed that apprenticeship programmes will now be a standard item for each JBM Board meeting to allow them to monitor developments and possible guidance material.

#### A4 JBM Guidelines

##### A4.1 JBM Guidelines for Developing Degree Programmes (JBM117)

The Guidelines Working Group (GWG) commenced a review of the guidelines in 2015. An updated version, covering MEng, BEng (Hons) and IEng degree programmes, and incorporating the engineering in practice annexes A-H – including professionalism and ethics; site visits; and industrial influence and input – was completed at the end of 2017. The new guidelines provide information in a more user-friendly format and emphasise the JBM's commitment to the integration of the key threads across the curriculum. (Other than this, there is little change to the guidelines.) Feedback from HEIs has been actively encouraged and will be welcomed (and will be incorporated as appropriate).

##### A4.2 Documentation Working Group (DWG)

The DWG was established with the purpose of reviewing, updating, cross-referencing and/or archiving all JBM guidelines which relate to the preparation of accreditation submissions and visits. It held its first meeting in June 2017 and made final recommendations to the JBM Board in June 2018.

##### A4.3 Further Learning

Further learning guidance material has been updated in parallel with the guidelines for developing degree programmes.

##### A4.4 Guidelines for Apprenticeship Programmes

A guidance document has been developed to support universities and colleges wishing to provide programmes of study that will provide the underpinning,

knowledge, skills and behaviours for one of the following approved apprenticeship standards.

- Civil Engineer (Degree) ST0417/01
- Civil Engineering Technician ST0091
- Construction Site Engineering Technician ST0046
- Railway Engineering Design Technician ST0315
- Civil Engineer Site Management (Degree) ST0042

A separate guidance document is being developed for use by Scottish universities and colleges.

## **B JBM Visits and Feedback**

B1.1 There were eighteen accreditation visits, four review visits, and one exploratory visit in 2018. International visits were made to Military Technical College (MTC); Xi'an Jiaotong Liverpool University; Nottingham University Malaysia and Ningbo campuses; and Heriot Watt Dubai campus.

B1.2 The JBM will visit the following HEIs in 2019:  
The University of Manchester, University of Glasgow, University of Surrey, University of Portsmouth, Cardiff University, Abertay University, Birmingham City University, Llandrillo College, University of Brighton, University of Exeter, Coventry University, London South Bank University, University of Central Lancashire, Leeds Beckett University, University of Leeds, University of Strathclyde, University of Bradford and Northumbria University. .

A Joint EAB visit will be made to the University of Bristol.

International visits are scheduled to Oman – a joint visit to the Middle East College (MEC) and Military Technical College (MTC); Rushmore Business School (delivering programmes in partnership with Leeds Beckett University), STI Myanmar (delivering programmes in partnership with the University of Bedfordshire) and Heriot Watt Malaysian campus.

B1.3 Feedback following Accreditation Visits  
The JBM actively seeks feedback from all HEIs which have undergone an accreditation visit. This feedback has led to a review of JBM submission documentation and the way that documentation is provided by universities. The new submission document template will be available to use on visits from autumn 2019 onwards. The Board is grateful to those universities who have agreed to test the document during their visits in spring 2019.

## **C Programme Accreditations**

C1 Summary of programme accreditations 2018:

- UK visit reports considered for CEng: 12
- International visit reports considered for CEng: 3
- Paper submissions for new programmes and reports in response to JBM recommendations: 19
- CEng approved: 47 (MEng) and 36 (BEng (Hons) as partial CEng
- CEng rejected: 2 (MEng) and 2 (BEng (Hons)
- UK visit reports considered for IEng: 4

- IEng approved: 8
- IEng rejected: 3
- Eng Tech approved: 8
- EngTech rejected: 5

C2 Summary of academic programmes accredited as meeting further learning requirements 2018:

- Further learning for CEng approved: 55 (12 non-technical and 43 Technical)
- Further learning for CEng rejected: 3
- Further learning for IEng approved: 0
- Further learning for IEng rejected: 0

## **D Key Areas of Interest/Emerging Topics**

D1 Dissemination of good practice

The JBM is committed to disseminating good practice across HEIs offering accredited programmes. Areas identified during visits in 2018 is included as Annex A.

D2 Engagement with the Engineering Council during the review of UK-SPEC and associated accreditation guidance (commenced autumn 2017).

D3 The development and review of apprenticeship standards (levels 3-6).

The JBM has expressed concerns relating to the amount of work to be undertaken in the workplace; specifically, how this is to be assessed and linked back to learning outcomes. Engagement with industry will be key in the success of a timely application by apprentices and their employers for an End Point Assessment

## **Annex A**

### **Good practice identified at accreditation visits**

#### **University of Brighton**

- The Team was impressed with the fact that all of the research facilities, in particular the laboratories, are also used for teaching at both postgraduate and undergraduate levels.
- Last year Civil Engineering students were involved in a new activity entitled 'Practical Skills for Construction'. This was a Community project to help those who wanted to get into the Construction Industry but had not had the opportunity to experience the practicalities of some of the work involved.

#### **University of Bristol**

- The level of student engagement is outstanding. Relationships between students and staff are very positive with good two-way feedback on a range of issues. Mechanisms for hearing the student 'voice' are very effectively utilised.
- The Department has been effective in increasing its proportion of female students from 28% to 40%.
- The contingency planning for study abroad and arrangements to 'catch-up' those returning who may have had gaps in their options on return are effective and praised by the students, who were all positive about their experiences.
- The Design Project in the 4th year produces excellent output.
- The opportunity provided for students to continue their 3rd year research project by selecting a 40 credit 4th year research project option, paving a way forward for a future research career.
- There is good use of sketching, particularly in the design project work.
- The first-year surveying course is challenging and has very positive outcomes for the students, particularly in terms of group cohesiveness.

#### **University of Durham**

- The provision of a solid foundation in Science and Mathematics and Engineering Analysis.
- Offering a broad exposure to Engineering Design techniques, materials selection and sustainability, with coherent Engineering Design through the first three years.
- Bright and articulate students.
- The quality of student work, namely, good writing standards and well-presented reports; good technical content and analysis with evidence of planning in project reports; an impressive quality of sketching; a high standard of project work with many inspired by current research; and very good research projects that are truly research projects in most cases.
- A very supportive and active Industrial Partnership Committee with representation from a range of companies.
- A well-structured approach to supporting industry-led projects.
- Opportunities for "hands on" experience including the Professional Engineers Applications Course (PEAC).
- Opportunities for students to work on international projects eg the solar car race.
- High quality equipment for mechanical laboratories, the aeronautics laboratory (wind tunnel) and the new equipment in the electrical machines laboratory, and the integration of laboratory work in the curriculum.
- All questions are compulsory in all exams, thus ensuring coverage of all learning outcomes and removing the temptation of 'question spotting'.

#### **University of Exeter**

- Clear evidence of double marking on examination scripts.
- The general first year is good and well received by students.

- All the students spoke positively about the Pelton Wheel project part of the first year Module ECM1101. The Team was impressed by the technology that is incorporated into this module.
- The counselling and mentoring support available to students.
- The links to local industry and the use of external lecturers.
- The students logbook that demonstrates early engagement with the professional bodies
- On the MSc programmes the use of programming
- They make good use of their research laboratories for the undergraduate projects

### **Leeds Beckett University**

- The teaching staff's open door policy
- The inclusion of sketching in the course induction

### **University of Liverpool**

- They are looking at the digital world and they are buying in new resources to allow development in this area. The Virtual Engineering Centre is a unique resource and allows students to develop and display their design in 3-D format.
- Construction Management modules that are relevant to industry and reflect current practice and support the vision of a Liverpool graduate.
- They run the Constructionarium and although they have not been able to offer this to everyone they have been able to support any student who has said that they would wish to attend the Constructionarium, to do so.
- The strong support from the ILC, in particular the Chair, who is actively involved in driving through change and his willingness to respond to new challenges.
- Plans to develop the research areas.
- Introduction of the EwB challenge in year one and the opportunities this has given for engagement by the ILC and for closer collaboration with the Architecture Department.
- The fact that the Library has laptops for loan by the students.
- The buying in of specialist skills from Arup to support design teaching

*Included as attachments are two documents (Include Annex A.1 and Annex A.2 on the role of the Industrial Advisory committee and embedding creativity in the undergraduate curriculum)*

### **Liverpool John Moores University**

- The strong links with Industry

### **Military Technological College, Oman**

- Ensuring that employer needs are being addressed in the programmes via the SNA.
- Plans for extra support for mathematics teaching by the development of a mathematics learning resource centre.
- Motivated staff and students
- The development of their own temporary Construction Site that allows students to build small scale structures.

### **Nottingham Trent University**

- Payment of one professional membership for staff
- Student IT profiles stored on computers to reduce boot up time
- Good level of investment in laboratories
- The School's excellent industry links, placement provision and employability rate

### **Queen's University, Belfast**

- The voluntary mentoring scheme, whereby second year students mentor first years new to the university was very highly regarded by the students that had participated. The team felt this scheme was of great benefit to new students both pastorally and academically.

### **University of Sheffield**

- Excellent links with Architecture Department
- Good engineering skills in Year 1 including first semester practicals where students follow a programme of practical workshops and record their learning in a single booklet.
- Research Showcase for students, with academics talking about their research projects
- Approachable staff
- Student integrated design projects were impressive
- Excellent new Diamond Building facilities for engineering lectures, practice and desk research

### **University of the West of Scotland**

- Student support and the supportive culture at the university is exceptional.

### **University of Wolverhampton**

- Improved links with local industry, leading to good placement opportunities
- The Infrastructure Engineering and Management programme is well positioned for the market and industry.

### **Xi'an Jiaotong Liverpool University**

- The Team was impressed by detailed feedback that the staff give to the students
- The trail for setting of exam papers is a well-documented process, from the point of setting papers, moderation of papers by Liverpool and by the External Examiner
- Mentoring scheme operated with support from the IAB members
- The IAB also award a number of prizes to the final year students
- Good laboratory provision, which many universities in UK would be envious of
- Research Fellowship (SURF) project