

JOINT BOARD OF MODERATORS

ANNUAL REPORT FOR

2004

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1. CHAIRMAN'S INTRODUCTION

I am very pleased to present the Annual report for the activities of the JBM during the year 2004. It was again a busy year for visits within the UK. On the International front we continued to provide direct support to those countries that have a limited number of universities offering degree programmes that fall within the scope of the JBM, and to work closely with those whose scale of activities make it worthwhile to set-up their own accreditation system.

It was a year when we had to start the process of rethinking many of the successfully evolved accreditation procedures. Having reached a reasonably stable state in accreditation within the terms of SARTOR 3, including the process for accrediting and approving Further Learning, the Board was faced with a range of new challenges resulting from the introduction by EC^{UK} of UK-SPEC. While this has given us opportunities to rethink some aspects of SARTOR 3 that have so clearly caused problems, it also presents major threats that in so doing we do not undo some of the very positive gains to UK engineering education achieved over the past 8 or so years. It has been all too apparent that SARTOR was not achieving one of its central aims of increasing the numbers undertaking educational preparation for registration as IEng. The new UK-SPEC should provide much greater encouragement to those offering and those taking such vital educational preparations. On the positive side SARTOR was extremely successful in promoting the educational base for CEng in the form of the MEng, and its equivalent through the BEng (Hons) and Further Learning. This has allowed the UK degree programmes to re-establish their traditional pride of place within any international comparisons. It is clear that we will all need to take great care that these very positive gains are not themselves eroded through inappropriate operation of the new UK-SPEC. Higher student tuition fees will provide an additional disincentive for students wishing to take one of the many excellent MEng programmes that have been developed. It is important that the JBM does everything it can over the next few years to protect these degree programmes from the real threats likely to be faced.

Partly as a result of the opportunities created by the introduction by EC^{UK} of UK-SPEC, the JBM was keen to revisit its Guidelines for educational programmes covering both IEng and CEng formation. Over the year we issued for consultation a draft form of revised Guidelines. It has to be said that the response was not overwhelming and the views expressed were, as might be anticipated, somewhat contradictory. However, we are keen to see these revisions through and especially to encourage greater flexibility and diversity in the ranges of educational programmes that are on offer. Civil engineering and its associated activities within the built environment sector require an immense breadth of talent and expertise. Our educational programmes need to reflect this breadth and diversity. However, it is clear that an accredited education programme must continue to mean something, and just what that something should be continues to exercise the drafters of the new Guidelines. It is our intention to have the new Guidelines available well before the start of the 2005/06 academic year to allow future accreditation to be undertaken in accordance with UK-SPEC.

At the meeting of the JBM Chairman and the Presidents of the associated Institutions it was agreed that the Institutions owe a great deal to those members from academia and industry that contribute to the work of the JBM and its associated Sub-Committees.

I would like to take this opportunity, on behalf of the JBM and its constituent member professional bodies, of thanking you for your assistance during my time as Chairman of the JBM. I am sure that you will continue to give your support to Dr John Hill who will succeed me as Chairman in January 2005.

James Croll

2. ROLE OF THE JOINT BOARD OF MODERATORS

The Institution of Civil Engineers, the Institution of Structural Engineers, the Institute of Highway Incorporated Engineers and the Institution of Highways & Transportation have established a Joint Board of Moderators (JBM) to coordinate accreditation events for educational programmes in engineering disciplines within the built environment sector and to make recommendations to the Institutions on accreditation decisions.

The role of the JBM is to maintain and strengthen links with Universities in the United Kingdom on all matters concerned with first degrees and further learning in those engineering disciplines of relevance to the participating Institutions. The JBM ensures that the standards of courses in Civil, Structural and associated engineering disciplines within the built environment sector meet the academic requirements for Chartered, Incorporated or Technician Membership of these Institutions. It is required, in concert with the educational establishments, to develop a system for accrediting degree, diploma and certificate courses to enable it to publish and keep up-to-date a list of qualifications which can meet the Stage 1 (Educational) requirements for Membership and Chartered Engineer (CEng)/Incorporated Engineer (IEng) and Engineering Technician (Eng Tech) qualifications. Applications for accreditation through individual Institutions are referred to the Board.

If requested the JBM will also consider accreditation of courses overseas provided that the sponsoring Institutions of the JBM incur no costs.

The JBM is appointed by and answerable to the Councils of the sponsoring Institutions and reports through the individual Professional Development and Membership Committees. The membership of the Board is drawn from the academic, public and private sectors, representing a wide spectrum of engineering associated with the built environment. All members involved in the accreditation activities of the Board are experienced engineers who bring to the moderation exercise an ability to make balanced judgements on the ability of a department to create a high standard of graduate output. As well as assessing the quality of the facilities, the content of the syllabus, the teaching and research base, and the rigour of the examinations, moderators assess how the department aims to stimulate creativity through the application of engineering principles. During the visit the representatives of the JBM will meet with students, recent graduates from the courses to be reviewed and representatives from local industry to ensure that the students experience is a positive one.

The Board has formulated Guidelines, which define in general terms the curriculum, learning outcomes, standards and other requirements against which all accreditation decisions are made. The Board aims not to be over-prescriptive in its requirements since it wishes to encourage diversity in education provision.

All accreditation visits are preceded by the submission of a standard report by the Department. The structure of each visit also follows a standard format. It involves a tour of laboratories and facilities, scrutiny of the quality of students' examination and coursework, and the assessment system. Discussions are held with academic staff, support staff, students and the Vice Chancellor, or Chief Executive, on all matters affecting the content, standard of teaching and learning, departmental facilities and funding issues relating to the courses being accredited. For its visit to a Department, the Moderating Team generally consists of two academics, two practising engineers and a secretary.

Each team's Visit Report and recommendations are considered by the full Board of the JBM, which decides whether to make recommendations to the participating Institutions that they should grant or renew accreditation for a period of up to five years. If the report is deemed sufficiently unsatisfactory the Board may refuse or terminate accreditation, but existing students on accredited degree courses are always protected from any changes in accreditation decisions.

To reflect the range of the Board activities a number of 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 courses 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 Company Managed schemes as meeting the Further Learning requirements for Chartered and Incorporated Engineers as appropriate.

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

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

3. EXECUTIVE SUMMARY

This was a year of consolidation as the structure of the JBM had been extended during 2003 to include representatives from the Institute of Highway Incorporated Engineers and the Institution of Highways & Transportation. Accordingly, the four Institutions will now accredit CEng, IEng and EngTech courses as appropriate.

The Board and its Working Groups and Sub-Committees discussed a number of major policy issues during 2004.

The International Sub-Committee of the JBM continued to take responsibility for the accreditation of degree courses/programmes in those engineering disciplines of relevance to the institutions at universities outside the UK.

The remit of the Further Learning Sub-Committee of the JBM is to produce a series of documents defining further learning and also to provide supporting information and guidance, clearly setting out procedural and explanatory notes.

The publication of UK – SPEC in December 2003 gave the Board the opportunity to review its guidance to universities.

In early 2004, as a consequence of the work of the Guidelines Group, the Board issued to universities a series of draft revised Guidelines for MEng, BEng (Hons) and IEng degree courses for consultation. Comments were received from a number of universities and these will be incorporated in revised documentation to be issued during next year, 2005.

The Board will be reviewing its guidance to universities on the academic levels expected for entry onto degree programmes, as the Institutions on whose behalf the JBM operates have commented that they expect existing entry standards to accredited courses to be maintained and be at a level appropriate for the courses on offer. If the entry falls below this standard the JBM would wish to know what additional support is being provided for such students to enable them to reach the required output standard.

Details of the Board's considerations follow together with a summary of good practice and some of the recurrent issues identified during the 2004 visits to the Universities.

4. JBM ACTIVITY IN 2004

4.1 Visits undertaken in 2004

Quinquennial Visits (Dates)		Review Visits (Dates)		DABCE Visits (Dates)	
University of Wales, College Newport*	20/21 Jan	Anglia Polytechnic University*	30 April	Durham	28/29 Jan
University of Surrey	12/13 Feb	Liverpool John Moores University	20/21 May	Aberdeen	28/29 April
Cardiff University	3/4 March	Liverpool University	24 June		
University of Exeter	4/5 March	University of Salford	25 November		
University of Portsmouth (CEng and IEng)	11/12 March				
University of Leeds	25/26 March				
Arab Academy for Science Technology and Maritime Transport	28/31 March				
University of Strathclyde	22/23 April				
Kingston University (CEng and IEng)	10/11 June				
University of the West Indies	18/19 October				
University of Bradford	28/29 October				
Queen's University of Belfast	28/29 October				
University of Warwick	4/5 November				

* Visit covered IEng courses only

4.2 Summary of Visits and course approvals

JBM Meeting In 2004	No of Visits (UK) CEng	No of Visits (O.seas) CEng	No of Paper Submissions for new courses	CEng Approved	CEng Rejected	No of Visits (UK) IEng	IEng Approved	IEng Rejected	Further Learning for CEng	Further Learning for IEng
30.01	3	0	3	26	0	0	19	0	34	
7.4	4	0	2	21	0	1	3	0	10	
25.06	8	0	4	57	8	2	15	2	31	2
15.10	3	1	6	21	0	0	1	0	30	1
Total	18	1	15	125	8	3	38	2	105	3

During this period five awards were approved as meeting the educational requirements for an Engineering Technician.

5. SUMMARY OF POLICY DECISIONS AND MAIN DISCUSSION BY BOARD

A number of major policy issues were discussed by the Board and by Working Groups/Sub-Committees on behalf of the Board during 2004. The structure and operation of the JBM continues to be monitored as the functions of the JBM continue to be fully integrated and become more effective.

Details of the main activities of the associated Sub-Committees are reported in the following sections.

1) International Sub-Committee

There were two international visits organised during 2004; one to the Arab Academy for Science and Technology and Maritime Transport (AAST) and one to the University of the West Indies. A number of policy issues have been identified and these will be considered during 2005.

Under the terms of the Washington Accord, representatives of the Accord came to the UK in October to review UK accreditation activities and three observers from America, Canada and South Africa attended as observers two accreditation visits, one being the JBM visit to the University of Warwick.

2) Higher Level and Technician Qualifications Sub-Committee

The Sub-Committee is responsible for the review and approval of centres offering Higher National Diplomas and Certificates in England, Wales, Northern Ireland and Internationally. Centres offering equivalent qualifications in Scotland were considered by the Sub-Committee with the assistance of representatives from Scotland and the Scottish Qualifications Authority (SQA).

During the latter part of the year, the Sub-Committee reviewed its operating procedures in light of the publication of UK-SPEC and agreed that they would liaise with the EC^{UK} to ascertain if it would be possible to give formal approval, without the need to undertake visits, to those academic centres offering standard Edexcel (BTEC) or SQA programmes in civil engineering. The proposal is due to be considered by the Registration Standards Committee of the EC^{UK} in early 2005.

The Sub-Committee also considered the accreditation of a number of Level III NVQ awards as meeting the academic base for an Engineering Technician.

3) Further Learning Sub-Committee

During the past twelve months the Sub-Committee has continued to approve company and university proposals for schemes of further learning.

As the Board has gained experience in assessing Masters degrees as meeting the further learning requirements for a Chartered Engineer, it has become clear that a Post-Graduate Diploma would meet the appropriate output standards for a Chartered Engineer as long as it is not awarded as a default to students deemed incapable of completing the thesis part of an MSc, and as such, these awards can also now be approved.

4) The Output Standards Working Group

A draft document was prepared and issued to universities for consultation in April 2004 and a number of comments were received by the closing date for consultation of 4th June 2004.

The document was also discussed at the annual ICE/IStructE/ACED Head of Departments meeting in June 2004.

A final document was produced at the end of November after a further period of consultation with Board members and after approval by the professional Institutions associated with the JBM it will be sent to universities, probably in Spring 2005.

5) The Guidelines Working Group for MEng, BEng (Hons) and IEng degree courses

Draft documentation was prepared during early 2004 and sent to universities for consultation in June 2004. A final document will be sent to universities in February 2005.

The parent Institutions (ICE, IStructE, IHIE, IHT) of the JBM were audited in the context of SARTOR 3 by EC^{UK} during 2004. Authorisation to accredit IEng and CEng courses was extended, as appropriate.

In April 2002 it was agreed that Universities could decide to allow students to enter civil engineering programmes without an A level in mathematics. During, 2004, the visiting teams explored in detail during accreditation visits, the steps that those Departments who had chosen to adopt this relaxation in entry requirements, had put in place to ensure that necessary mathematics standards are being maintained.

The Board noted that as a consequence of a reduction in teaching income there continues to be pressure on Departments to recruit new staff with a proven research record as income generators. The Board recognised that most extra income now comes through research work and Departments at Universities without strong research activities will be forced to increase the student to staff ratios in order to remain viable. In the light of these pressures exhortations for the recruitment process to put greater weight on new staff with appropriate professional; and practical experience are too often falling on deaf ears.

The revised Guidelines Annexes on Design and Sustainability were issued to all Departments in August 2003. Both documents had been updated to reflect good practice identified over the intervening years since their first introduction in 1998. During accreditation visits in 2004 the Board was pleased to note the positive impact of these revised Guidelines on the design of undergraduate courses.

6. 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. This section of the report summarises the main areas of good practice observed during 2004.

Following the publication of the new detailed Annexes on Design, Sustainability and Health and Safety, the documentation received from Departments has usually been of a high quality. In particular, Departments have invariably dealt with problems identified during the previous visit and have shown a willingness to enter into a dialogue with the Visiting Team.

The Board has been pleased to note the way some Departments have chosen to prepare their submission documents, in particular the way in which the university had provided a detailed response to concerns raised at previous visits. This made the document easier to follow and assisted Moderators during the visit. It also helps the Visiting Team where the entire submission is received in a single bound document, ideally double sided. Another change in the submission documents received during 2004 is the provision by some Departments of details of their past examination papers and module descriptors on a CD Rom. This caused a significant saving in terms of paper used and is something the Board encourages other Departments to consider.

A recurring theme in most Visit Reports is that the Moderating Team was impressed by the articulate and enthusiastic students who were very supportive of the staff. Similarly, many Visit Reports refer to a strong team spirit between the staff and the students and that a good atmosphere is apparent during the visit, often as a result of the "open door" policy of the staff in the Department. A Personal Tutor Scheme is operating well in most Departments. In many cases students provided clear evidence of how effectively the student feedback system was operating in the University.

The links between Departments and Industry continue to be somewhat more variable. However, in those Departments with an effective Industrial Liaison Committee, or where there is a high level of regular contact between the Department and Industry, there was clear evidence of the benefits to be gained by all parties; including students. In particular, excellent links between Universities and Industry have been established in those Departments offering sandwich or vacation placements. Evidence was also provided in many cases of good use being made of Visiting Professors, some of whom were based in Industry, and of links developed between the Department and the HSE.

Good use is being made of the excellent facilities available in most universities. These facilities include Laboratories, Libraries and IT facilities, which are supported by dedicated supportive staff. A good number of Visit Reports indicated that the research work of staff was being fed back to the students in project work and occasionally in final year modules.

Good use is being made of university intranet systems to enable students to access lecture notes, worked examples and previous examination papers. One system in particular use and popular with staff and students is Blackboard. Also, with the pressure on library space a new system www.ENGnetBASE.com, has been introduced in some Universities.

In reviewing those staff CPD records made available to Visiting Teams, the Teams were pleased to be able to report to the Board the number of academic staff who had also gone through the formal training process to become Reviewers for one of the professional Institutions. Also, the Board believes that as part of their CPD record academic staff should consider recording their links with industry.

Further areas of good practice identified in 2004 include the following:

- High standards in supportive documentation e.g. Industrial Training Manual, Project Logs, Professional Record Files etc.
- Extensive range of site visits and especially where these are integrated in the undergraduate programme.
- Field Courses – many with significant financial support from the Department.
- Innovative use of creative design.
- Good links with other Departments e.g. the Architecture Department.
- Some evidence of greater attention being given to Environmental issues.
- Good quality CD Rom's being produced by staff in support of teaching.
- Departments that ask students to maintain a diary that shows their involvement in the MEng Group project and it is also used to provide evidence that they have worked as a group.
- A Department operates a two-tier system of advisory support with a Strategic Advisory Group and an Engineering Advisory Group. The Strategic Advisory Group meet to discuss policy matters and gives guidance on curriculum, whilst the Engineering Advisory Board are involved in student project work and give occasional lectures.
- Academic staff becoming professional reviewers for the Institutions. Some Departments have a member of staff registered as a Supervising Civil Engineer to support the activities of the research students.
- At one University, the management of the Surveying Field Trip by 3rd year MEng students for 1st year students, incorporating full risk assessment and health & safety checks.
- At one university there is a Mathematics drop-in centre where third year students assist undergraduates with maths problems and guidance is available on all Engineering-related Mathematics problems.
- The merger of engineering departments has provided a greater opportunity for joint project work between the disciplines thus capitalising on the strengths and complexities inherent in each discipline.
- A number of universities continue to offer students the option of spending a year abroad and this has worked well where this time abroad correlates closely well with the accredited programmes offered by the School.
- At one University they found that the School had a design field trip at the start of the third year to help integrate the year out students with those who have gone straight through, to act as a team-building exercise, and to introduce the principles of integrated, sustainable design.
- The QA procedures adopted by one University in regard to the collaborative arrangement with a local College were excellent. Staff and student interchange between the two academic establishments is excellent and travel arrangements between the two sites works well.
- Some Schools use class tests in Years 1 and 2 in appropriate subjects and these serve both as revision aids and as a means of assessing the students' level of knowledge.
- At one establishment the School organised its laboratories to include an "on demand" facility and submission by students on an excellent e-based monitoring system.

7. CURRENT ISSUES

This was another year of consolidation as the Board visited a number of Departments seeking accreditation of programmes that satisfied the educational base for CEng and IEng. The aims and objectives of various degree schemes at a number of Universities were considered to be disappointing with many not differentiating significantly between IEng and CEng degree schemes or between full-time and sandwich degree schemes. The broadening aspects of the MEng degree were often overlooked in the aims and objectives. Also, many Departments failed to refer to the uniqueness of the course or the Schools particular strengths in the published documentation.

In recent years, many Civil Engineering Departments have merged, either with other engineering disciplines or with other departments in the areas of the Built Environment or Architecture.

The Board continues to be concerned about the number of Visit Reports stating that the Visiting Team had experienced difficulty in identifying a design thread throughout the course. The Board will keep this area under review since the difficulty is unlikely to ease with the pressure coming from the administration arm of the Universities to appoint "research active staff".

A number of the Visit Reports have drawn attention to the lack of an effective Industrial Liaison Group or Board. Many such groups have met only on one or two occasions, which had apparently been triggered by the forthcoming JBM Visit. It is clear that such groups have not been involved at a number of Universities in the development of MEng degree schemes, as expected. On the other hand, there was good evidence that where such groups have been active, the University and students had derived significant benefits from their activity.

Other specific issues of concern arising from the 2004 Visit Reports include:

- Need to improve the teaching of Health and Safety.
- With the introduction of the new Guidelines the Visiting Teams are keen to ensure that environmental and sustainability issues are embedded within the course programmes where appropriate.
- Need to monitor the design thread to ensure that it permeates the entire programme and is not isolated to individual modules.
- Need for more conceptual design/sketching/drawing and to ensure a 'design thread'.
- Need for more compulsory site visits and Field Courses.
- Due to Quality Assurance issues, some universities do not give credit for the year spent abroad by a number of students and the Board believes that where appropriate credit should be given.
- Keep staffing levels under review.
- The lack of studio design space for the group work in Year 4 of the MEng programmes.
- That the benefits of membership of the Institutions should be stressed to the younger members of the academic staff. It is important that students come into contact with lecturers who are professionally qualified.

**DETAILS OF MEMBERSHIP JOINT BOARD OF MODERATORS AND ASSOCIATED
SUB-COMMITTEES 2003/2004**

Joint Board of Moderators

Chairman	Professor J Croll
Deputy Chairman	Dr J Hill
Members	Professor D Anderson
	Professor M R Barnes
	Professor B G Clarke
	Mr P A Cooper
	Mr P Dipper
	Mr T A Ealey
	Mr S Evans
	Mr S W Garrity
	Dr R Henson
	Mr D Hoskins
	Mr S Hyde
	Mr K Linje
	Professor R Plank
	Professor W Powrie
	Mr A Silver
	Professor N Smith
Ms F Wainwright	
Dr C Williams	
EC (UK) Rep.	Mr M Robbins
Int. Comm. Chair	Professor B Barr
HLTQSC Chair	Mr E Hewitt
	Mr R Haryott
FLSC Chair	Professor R Jackson
Secretariat (ICE)	Mr M Barrett
	Ms E Ryan
	Ms D Seddon
(IHIE)	Ms M DaCosta Ms J Walker
(IHT)	Ms T Coyle
(IStructE)	Mr A Brereton
	Mr D Byrne
	Ms M Dignan
	Ms M Dempster
	Ms R Hick

JOINT BOARD OF MODERATORS - ASSOCIATED SUB-COMMITTEES

Higher Level and Technician Qualifications Sub-Committee

Chairman - Mr E Hewitt
Mr D Hoskins
Mr J McNeill
Mrs J Knight
Mr B Pyper
Mr C Bedford
Mr P Dipper

Secretariat – M Da Costa
M Dempster
M Barrett
E Ryan

International Sub-Committee

Chairman - Professor B Barr
Mr C Carter
Professor D Cleland
Mr R Eastwood
Professor R Hawkins
Mr E Hewitt
Mr J C Joel
Mr R McKittrick
Professor C Melbourne
Professor D Nethercot
Professor N Smith
Mr M Stokes
Professor H Wright

Secretariat – M Dignan
M Barrett
E Ryan
D Seddon

Further Learning Sub-Committee

Chairman - Professor R Jackson
Professor M Barnes
Mr R Chantrelle
Professor B Clarke
Mr P Cooper
Mr E Hewitt
Mr J C Joel
Ms D Larkman
Dr J Keer
Mr L Parker

Secretariat – M Dignan
M Barrett
E Ryan