

# **JOINT BOARD OF MODERATORS**

## **2006 ANNUAL REPORT**

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## 1. Chairman's Introduction

I am very pleased to present my second Annual Report to you as Chairman of the Joint Board of Moderators (JBM) outlining the activities that the JBM has been involved with during 2006. It was again a busy year for visits within the UK. On the International front we continued to provide direct support to those countries having a limited number of universities offering degree programmes falling within the scope of the JBM, and to work closely with those countries whose scale of activities make it feasible to set-up their own accreditation system. We also considered how best to work with UK universities establishing departments in other countries.

Several revised guidelines for degree programmes have been published on the JBM website which is now the JBM preferred means of communication. Guidelines posted during 2006 contain the results of experience to date in the application of output standards in accordance with UK-SPEC. A more structured approach is required to the provision of evidence that can be assimilated by visiting teams. There is continued emphasis on the 'threads' of design, sustainability, and health & safety risk management; new guidance has been given which I trust will be helpful to both departments and reviewers.

The development of schemes by the Board for further learning to both CEng and IEng have led to a revision of the Employer managed scheme to CEng and a new scheme leading to IEng. These are commended to employers. There is already renewed interest from within the UK and also from some internationally based organisations. Full documentation for both employers and candidates was made available during the year.

The Board has been concerned with lack of progress on addressing the problems arising from UK participation in the Bologna Agreement. Guidelines were issued by Universities UK in November 2005 which pointed out incompatibility between integrated degrees and Bologna statements. The Board has been aware that some departments are seeking to improve compatibility but there remains uncertainty as to what changes will prove necessary, or feasible in the present funding climate and available resources within an academic year. The JBM would not wish to see the degrees it accredits being measured unfavourably against European and other standards and will continue to press for a timely resolution of the uncertainties.

The Board has been impressed by the good practice it has seen in many of the departments visited. It views it as important that it should facilitate the sharing of good practice through this Annual Report and by specific examples provided on the JBM website. Excellent links with industry and the institutions are seen in some but not all departments. The Board considers industrial advisory committees or similar to be important contributors to departments from the profession and a resource which is often underestimated and rarely quantified.

I would like to thank the JBM secretariat for their support over the past year and also the secretariat staff from the member institutions who had supported the accreditation process in their role as visit secretaries.

At the meeting of the JBM Chairman and the Presidents of the associated Institutions it was agreed that the Institutions are indebted to those members from academia and industry who contribute to the work of the JBM and its associated Sub-Committees.

Dr John A Hill

## **2. Role of the Joint Board of Moderators**

The Institution of Civil Engineers (ICE), the Institution of Structural Engineers (IStructE), the Institute of Highway Incorporated Engineers (IHIE), and the Institution of Highways & Transportation (IHT), established a Joint Board of Moderators to coordinate accreditation activities for educational programmes in the civil, structural, transportation and associated engineering disciplines within the built environment sector.

The JBM debates and make recommendations on accreditation, approval and non-accreditation of educational programmes for decision by the JBM member institutions. The JBM will maintain and strengthen links with universities and colleges on all matters concerned with the education of civil, structural, transportation and associated engineering disciplines within the built environment sector.

The JBM ensures that the standards of programmes 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/approving programmes of study to enable it to publish and keep up-to-date a list of qualifications which can meet or contribute towards the academic base requirements for Membership and Chartered Engineer (CEng), Incorporated Engineer (IEng) and Engineering Technician (Eng Tech) qualifications. Applications for accreditation made through individual Institutions are referred to the Board.

If requested the JBM will also consider accreditation of programmes overseas provided that the sponsoring Institutions of the JBM incur no costs and the area of activity falls within their business objectives.

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 students, recent graduates from the programmes 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 programmes being accredited. For its visit to a Department, the visiting 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 programmes are always protected from any changes in accreditation decisions.

To reflect the range of the Board activities a number of specialist Sub-Committees has 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 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 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).

### **3. Executive Summary**

The Board and its Working Groups and Sub-Committees discussed a number of major policy issues during 2006.

As part of their review of JBM activities, the JBM member institutions have been reviewing the membership of the JBM and eight new members joined the JBM Board in 2006.

Visits from autumn 2005 have been undertaken using the new Guidelines including the document "Guidelines for Checking Output Standards of Degree Programmes" and issues identified following these first visits were discussed by the Board in January and April 2006. This has resulted in changes to the accreditation submission document sent to universities prior to the visit and an extension in the visit timetable.

The Board confirmed that it is important that the programme leader develops a portfolio of student evidence to support the output standard requirements for each of the programmes at their exit level. A Department should seek to map its learning outcomes for course modules against the requirements set out in UK-SPEC.

Before any accreditation visit universities must review the content of all programmes to ensure that health, safety and risk and environment and sustainability issues are covered satisfactorily and in compliance with revised the JBM guidelines.

As part of their submission documentation universities are now required to include information on their compensation regulations. This is to enable visiting teams to ensure that these regulations are compatible with the JBM guidelines that compensation should not be allowed if it undermines achievement of the overall learning outcomes of the programme(s), that the project should not be compensated and that normally only 20 out of the 120 credits could be compensated.

#### 4. JBM Activity In 2006

##### 4.1 Visits undertaken

Quinquennial Visits	(Dates)	Review Visits	(Dates)	EAB (DABCE) Visits
University of Greenwich	26 /27 January	Exeter	9 February	University of Bristol 16 March
Coventry University	2/3 February	Bradford	9 March	
University of Peradeniya	12/14 February	Wolverhampton*	16 March	
University of Moratuwa	15/17 February			
University of Edinburgh	16/17 February			
Loughborough University	23/24 February			
University of Ulster	2/3 March			
Brighton University	9/10 March			
Glamorgan University*	23/24 March			
University of East London	2/3 November			
Nottingham Trent University	9/10 November			
University College London	16/17 November			
Napier University	23/24 November			

\* Visit covered IEng programmes only

##### 4.2 Summary of course accreditations

Date of JBM Board Meeting in 2006	No of UK Visit Reports considered CEng	No of Visit Reports Considered (O.seas) CEng	No of Paper Submissions for new programmes	CEng Approved	CEng Rejected	No of UK Visit Reports considered IEng	IEng Approved	IEng Rejected
20.01	3*	-	1	23	-	1*	1	1
21.04	8	2	-	32	-	5	16	-
30.06	1	-	-2	1	-	0	-	-
13.10	-	-	2	1	-	1	1	-
Total	12	2	3	55	-	7	18	1

\*This JBM meeting considered a number of visit reports for visits undertaken in October/November 2005

**4.3 Summary of programmes of study approved as meeting Further Learning requirements**

<b>Date of JBM Board Meeting in 2006</b>	<b>Further Learning for CEng</b>	<b>Further Learning for CEng Rejected</b>	<b>Further Learning for IEng</b>
20.01	76	-	-
21.04	32	-	-
30.06	5	-	-
13.10	1	-	-
Total	114	-	-

## 5. Summary of Policy Decisions and Main Discussion by Board

A number of major policy issues were discussed by the Board and by Sub-Committees on behalf of the Board during 2006.

- *Compensation*

The Board agreed a policy on issue of compensation as requested by EC<sup>UK</sup> namely that all learning outcomes must be met and that all JBM core subjects (as outlined in its degree guidelines) should be passed. Compensation for non-core subjects was acceptable.
- *University website information*

The JBM would wish to encourage university departments with accredited JBM degrees to publicise this fact in their programme material and on their websites.
- *Industrial Action*

Dr Hill reported to the June Board meeting that he had written to all JBM accredited universities to enquire about their procedures to maintain rigour in assessment of students in the event of proposed industrial action by university lecturers. He was pleased to report to the Board that many responses had been received – all satisfactory- and that the threat of industrial action had ceased.
- *Feedback on a JBM Visit*

The Board confirmed that visiting teams should not provide any feedback on its proposed accreditation recommendations at any visits. However, the Board was reminded that in order to facilitate providing prompt decisions to universities about accreditation decisions, the JBM member institutions had previously agreed that approval of JBM recommendations by the relevant institutions could be achieved without having to wait for the relevant Committee/Board meeting of that institution. Where appropriate, IStructE and ICE had undertaken to use chairman's action, IHT would approve them by using a Sub-Committee of its appropriate Board/Committee, and IHIE had undertaken to provide decisions within three weeks of receiving the recommendations from the JBM Secretariat.
- *Accreditation rather than Approval*

At the request of EC<sup>UK</sup> all programmes submitted for consideration by the Board will now be considered for accreditation rather than approval. The Board has also been happy to consider Post-Graduate Diplomas as meeting the Further Learning requirements for a chartered Engineer provided that it is not awarded as a default to students deemed incapable of completing the thesis part of an MSc.
- *Accreditation of programmes of study offered by UK Universities at non-UK locations*

A policy note on the accreditation of programmes of study offered by UK Universities at non-UK locations, is now available for review on the JBM website
- *Meeting of Accreditation Chairmen*

The Chairman of the EC<sup>UK</sup> Registration Standards Committee, Professor David Anderson, invited Dr Hill, in his capacity as Chairman of the JBM to attend at meeting at the IStructE on Wednesday, 1 February 2006, involving all EC<sup>UK</sup> member institution accreditation committee chairmen, to discuss developments in academic accreditation.

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

### **5.1 International Sub-Committee**

Following the two international visits organised during 2006 a number of policy issues were identified and considered at the Sub-Committee meetings.

- During their visit to Sri Lanka, JBM representatives were pleased to take part in a briefing session for the accreditation panel representatives of the Institution of Engineers, Sri Lanka who currently have associate status with the Washington Accord.
- The Board was pleased to note that the Institution of Engineers Singapore joined the Washington Accord in 2006 and as such bachelor degree programmes from Singapore are now covered by the terms of the Washington Accord and it is no longer necessary for the JBM to undertake separate accreditation visits.
- The Sub-Committee developed a guidance note that outlines the JBM policy on the accreditation of programmes of study offered by UK universities at non-UK locations and on the situation where the first year or years of study are completed at a non-UK campus or college and the final year or years of study are completed at the UK-campus. This document is now available for review on the JBM website [www.jbm.org.uk](http://www.jbm.org.uk).
- The International Sub-Committee continues to work with their colleagues on the Russian International Accreditation Board (RIAB) and they were pleased to receive reports on the RIAB recent accreditation visits to Moscow State University of Civil Engineering.

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

- The JBM agreed to continue to develop and maintain a list of approved programmes for EngTech registration.
- One area that the Sub-Committee will be reviewing in 2007 is the growth of Foundation Degrees and they will consider if separate guidance is required.

### **5.3 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.
- The Board agreed to recommend to the JBM Member Institutions, that it should not normally consider Masters degrees/PGDips as Further Learning proposals for meeting the additional learning requirements for a Chartered Engineer unless the university concerned had accredited CEng undergraduate degree programmes.
- A Working Group was tasked with delivering new Guidelines covering all aspects of

Further Learning at IEng and CEng level and new guidance material for organisations offering schemes aimed at meeting the Further Learning requirements for an IEng were issued in January 2007 and are available for download from the JBM website.

- It was agreed that the JBM member institutions should promote the uptake of Employer-Managed Work-Based Further Learning Programmes to increase accessibility beyond the large employers.
- It was agreed that research degrees (e.g. MSc by research, MPhil and PhD) should not normally be considered for approval as Further Learning at this time, and that candidates should proceed via the Individual Case Route for institution membership and CEng registration. This was because of the bespoke nature of the research topics, which negated approval as a standard route.
- The growth in the number of programmes available by distance learning was noted with interest.
- Professor Barry Clarke has replaced Professor Robert Jackson as Chairman of the Further Learning Sub-Committee. Mr Roger Chantrelle and Mr Christopher Joel completed their service on the Sub-Committee and were replaced by Dr Robert Lark, Mr Kevin Howatt and Mr John Ingle.

#### **5.4 Other Issues considered by the Board in 2006**

- *Non A level mathematics entry*  
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, 2006, 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.
- *Pressure to have research active staff*  
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.
- *Direct Entry to Final Year*  
EC<sup>UK</sup> has advised that the requirement that overseas students complete two years of study at a UK university before being awarded an accredited degree no longer exists. The Regulations and Standards Committee felt that a blanket rule of this sort could not be sustained once accreditation was linked to output standards. A university would presumably have admitted someone to the final year of a programme on the basis that their prior learning together with that final year would enable them to achieve the learning outcomes of the programme. This would not necessarily stop institutions from saying that accredited status only applied to those who had

completed two years of a particular programme, but that would have to be done on a programme by programme basis, rather than as an overall rule. The university would have to demonstrate how those who only did one year actually achieved the outcomes. It would certainly be reasonable for institutions to look closely at any programme, which seemed to have a large number of such graduates

▪ *Royal Academy Seminar*

At their meeting in October, the Board noted comments from Dr Hill about the issues arising from the Royal Academy of Engineering, Churchill College Seminar. The key points were as follows: -

- There has been a shift of UK production to low cost economies
- The importance of studying the core engineering subjects
- The importance of accreditation bodies being open to change and innovation.

It is understood that the Royal Academy is likely to conclude that: the key issue on which the Academy can deliver is to improve the quality of interaction between academia and industry in respect of teaching.

▪ *Bologna Declaration*

During 2006 the Board has spent a considerable time considering the implication of the Bologna declaration and the debate covered such items as: -

- whether universities should consider awarding double degrees of BEng and MEng
- that PgDips will not qualify under Bologna as Masters level qualifications.
- It was noted that MEngs would qualify under Bologna as first-cycle degrees, but were 60 credits short to qualify as second-cycle degrees.
- Concern was raised over the issue of funding for universities because the DFES would not be willing to subsidise the additional study time required to take extra credits. It is believed that only an additional three months of study would be required to accommodate the extra credits.
- It has been agreed that the JBM secretariat should contact universities with JBM accredited degree programmes to ask them what plans they were making in order that their degree programmes complied with the Bologna requirements.

▪ *JBM Website*

The Board agreed to a proposal to revamp and develop the JBM website which would involve very basic restructuring of the existing information rather than whole-scale restructuring of website design and functionality.

▪ *Engineering Accreditation Board*

In January 2006 the Engineering Accreditation Board (EngAB) replaced DABCE. The member Institutions of the JBM are represented on EAB. One member of the Institution and a member of the secretariat attend EAB meetings. Minutes of EAB meetings are sent to JBM Board members for information.

The current JBM policy is that it will only take part in those visits organised under the auspices of EAB where an educational establishment had generic, integrated engineering degree programmes rather than specific civil engineering programmes.

▪ *New Board Membership*

In 2006 to assist the operation of the JBM the member Institutions reviewed their nominees to the Board and the associated Panel of Moderators and eight new Members joined the Board throughout 2006, Professor Colin Bailey (University of Manchester), Mr Chris Nason (Warwickshire County Council), Professor Gerard Parke (University of Surrey), Mr Ed McCann (Expedition Engineering), Dr David Twigg (Loughborough University), Professor Tim Ibell (University of Bath), Mr Stephen Spender (Hampshire County Council) and Mr Tim Edmunds (Suffolk County Council).

- *Move to Panel of Moderators*  
Mr Ken Linje, Mr David Hoskins and Mr Peter Dipper completed their service on the main JBM Board at the end of 2006 and they have kindly agreed to remain as members of the Panel of Moderators for a further three years.

### 5.7 Issues to be considered by the Board in 2007

In 2007, the following areas are to be considered by the JBM: -

- Need for further guidance to departments as visiting teams gain more experience of assessing, undergraduate and masters programmes using the new Output Standards documentation
- Development of supporting guidance material on Further Learning for potential candidates that have not been able to follow an Employer-Managed Work-Based Further Learning programme or an accredited MSc degree.
- The issue of MEng as a fast-track route to CEng registration will be given further consideration
- The Board is intending to develop a Business Plan and to set objectives for 2007.
- A number of universities reported that they were considering plans to offer a Foundation Degree in civil engineering and the growth of such programmes will be monitored by the Higher Level and Technician Qualifications Sub-Committee during 2007.
- To meet with QAA to discuss opportunities for closer collaboration in accreditation activities.

### 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.

- *Example of Good Practice on the provision of Health, Safety and Risk Management*  
Following the publication of the new detailed Annexes on Design, Sustainability and Health, Safety and Risk Management, the documentation received from Departments has usually been of a high quality. In one case the way the University outlined how it is intending to address the provision of health and safety risk management within undergraduate programmes was considered to be exemplary and the Board is pleased with the approval of the University of Glasgow to be able to include its proposal on the JBM website as an example of good practice.
- *Examination Papers on CD-Rom provided that it is well organised in this format with*

*HTML references to sections of the documentation.*

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 2006 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. One University made its examination and solution papers available to the visiting team using a secure web link and this did not work so well and the Board confirmed that it would prefer to receive documentation on a CD Rom.

- *Support from Students*

A recurring theme in most Visit Reports is that the visiting 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.
- *Links with Industry*

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 who were based in Industry.
- *Support Facilities*

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.
- *Research work*

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.
- *Intranet systems*

Good use is also being made of university intranet systems to enable students to access lecture notes, worked examples and previous examination papers. One system in particular usage and popular with staff and students is Blackboard.

In a change to previous versions of the Annual Report detailed examples of good practice are listed in Annex 1 and a contact name is provided if more detailed information is required. JBM is keen to facilitate the spread of best practice and comments are invited.

## **7. Current Concerns**

## Undergraduate programmes

- *Aims and Objectives*

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 even between the different modes of study. The broadening aspects of the MEng degree were often overlooked in the aims and objectives. Also, many Departments continue to fail to refer to the uniqueness of the course or the Departments particular strengths in the published documentation. This is an area in which the Industrial Advisory Board or its equivalent can help to ensure that the course structure meets the aims and objectives as specified by the Department.
- *Need to maintain documentary evidence for visiting teams*

That Universities are failing to recognise that with a move to the accreditation of degree programmes against defined output standards that they must maintain a body of evidence to enable visiting Teams to assess and confirm that the appropriate output standards are being achieved.
- *Failure to capitalise on links with industry*

The failure by Departments to capitalise on their links with the local civil engineering organisations is extremely disappointing, though some excellent examples have been noted.
- *Lack of evidence of a design thread*

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".

Other specific issues of concern arising from the 2006 Visit Reports include:

- That Departments should continue to encourage students to pursue research/investigative based projects of a topical/creative nature.
- That Departments look at their assessment methodology to further discriminate between students in the group elements of project work.
- That some Departments continue in their efforts to reduce the student drop out rate.
- The need for examination papers in MEng programmes to be more open-ended.
- That the teaching of design must be enhanced to ensure that student's final level work demonstrates a more holistic rather than an elemental approach to the principles of design.
- The need to instil a culture of health and safety risk management within the Department and amongst the students.
- The need to integrate sustainable development principles into the teaching with greater emphasis on social and economic impact and the better use of natural resources.

- The failure by many Departments to capitalise on the opportunities for inter-departmental project work by students i.e. with the Department of Architecture where one exists.
- The need for Departments to advise its students of the need for further learning where appropriate.
- Students must be encouraged to become members of ICE, IStructE, IHT or HIIE and to participate in the activities of these institutions.
- To ensure that the themes of sustainability, health safety and risk management are embedded in the undergraduate programmes where appropriate.
- The need to monitor progression rates so that at the time of an accreditation visit, data can be provided that demonstrates how the cohort extremes have been supported.
- To introduce more site visits for full-time students.
- That the benefits of membership of the Institutions should be stressed to members of the academic staff. It is important that students come into contact with lecturers who are professionally qualified. Departments must encourage academic staff to pursue professional membership and Chartered status where appropriate.
- That marking of the undergraduate dissertations clearly demonstrates how the final mark awarded to the student has been determined.
- That students produce drawings both by hand and using computer packages.
- Regulations for referral and compensation should be transparent and easy to understand by visiting teams.
- Graduates must achieve learning outcomes in the core subjects.
- Departments should continue with the modernisation of facilities particularly the laboratory space.
- Departments are encouraged to monitor graduate progression into the construction industry.
- Departments need to ensure that there is less of a bias towards literature/desk study individual projects, as opposed to laboratory/experimental work.
- Need for Departments to ensure that they fully utilise the support available through their industrial liaison panel or its equivalent. Some industrial panel members are more than willing to become involved in the assessment of Final Year projects, design tutoring, industrial placements (or vacation experience) and site visits. In some cases visiting teams have suggested that the membership of this industrial panel should be expanded to better reflect the broad nature of the civil engineering profession.

## **7.2 Post-Graduate Programmes**

This was the first year that visiting Teams also had to review a significant number of examples of the output from MSc programmes and a number of comments from Teams refer specifically to issues arising from the request for the accreditation of these programmes of study. In particular: -

- The need to make MSc projects more challenging.
- To make the examination papers for the MSc programmes more open ended and challenging.
- The lack of evidence of sufficient technical depth and specialist engineering theory and application to Masters level in some of the potential routes within the MSc programme when students have the choice to follow a number of pathways.

- The conflict between providing a course that caters for non-engineering graduates and the requirements of a Further Learning experience that ensure that BEng (Hons) graduates have met the educational base requirements of a Chartered Engineer. Departments are reminded that entry to a Masters programme submitted for accreditation is normally at 2.2 or better and when the average entry of the cohort does not meet this standard then the visiting team will expect to see evidence that demonstrates how the cohort extremes are being supported.
- The assessment weighting for a programme which is nearly 100% coursework.
- The need for all assessments on MSc programmes must be at M level.
- The weighting of assessments between examinations and assignments should be reconsidered for the taught modules of an MSc.

As a consequence of the experiences of JBM visiting teams, the Further Learning Sub-Committee has been asked to develop and promulgate clear guidance and criteria against which MSc programmes can be judged as meeting the requirements and standards of Further Learning which will ensure that a graduate undertaking such learning will have met the educational base requirements of a Chartered Engineer.

**Annex No. 1****University of Bradford**

Dr Crina Oltean-Dumbrava Tel: +44 (0)1274 233646,  
Email: [m.c.a.oltean-dumbrava@bradford.ac.uk](mailto:m.c.a.oltean-dumbrava@bradford.ac.uk).

**▪ Professional Advisory Board**

The Professional Advisory Board is an area of good practice. It is made up of academics and a range of practising engineers from a number of disciplines whom are involved in the marketing of degree programmes and course content. The Civil Engineering Advisory Board is a subset of this and is seen as exemplar of how such a Board should operate by the School.

**Coventry University**

Dr J W Davies, Tel+44 (0)24 7688 8095 (direct)  
Email: [cbx098@coventry.ac.uk](mailto:cbx098@coventry.ac.uk).

- **Centre for Mathematics Support**
- **Centre for Academic Writing**
- **Add+vantage scheme**

**Centre for Mathematics Support**

The University has a Mathematics Support Centre, which provides mathematics support to students from across the University. The Centre, in conjunction with Loughborough University has recently been awarded Centre of Excellence in Teaching and Learning (CETL) status by HEFCE. This brings with it substantial additional funding. All students undertake a diagnostic test in their first week at the University and this test enables the Centre to spend time with the students to help them identify areas on which further support may be required. What makes this facility unique when compared to similar schemes at other universities is the level of ongoing support available to students throughout their entire degree programme. This year the Centre is operating a new scheme that will give additional support to those dyslexic students who also have a mathematical component in their degree programme. There already appears to be signs of improved achievements in the modules requiring analytical applications.

**Centre for Academic Writing**

Students are also encouraged to make use of the Centre for Academic Writing, which has a drop-in facility and produces support materials.

**Add+vantage scheme**

The Add+vantage scheme, which is a new University initiative for broadening students' studies. It is a large collection of 10 credit modules. Students are required to take one of these at each level of their degree (though part-time students are exempt) and there are nine pathways that they can follow depending on their career aspirations. The modules offer scope for student study in a wide variety of areas linked to 'graduateness' and 'employability'. The scheme includes languages; law, advanced IT and mathematical skills and aims to give the graduates work related skills that can be mapped against the competencies needed by employers within the workplace.

**University of Edinburgh**

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Dr Robin Wardlaw Tel: - +44 (0)131 650 5944  
 Email: [robin.wardlaw@ed.ac.uk](mailto:robin.wardlaw@ed.ac.uk).

- Pared project concept
- Industrial placements for MEng students
- Access to a communications specialist
- Arrangements for a Industrial Advisory Board meeting to involve students

#### **Pared Project Concept**

The paired project concept, which involved two students collecting the data, but producing separate reports and presentations. The evidence of different, but equally valid conclusions being reached by the students demonstrated that each was producing a truly separate report, and reinforced the value of this type of project in terms of students' understanding differing perceptions of a problem and that more than one solution existed.

#### **Industrial Placements for MEng students**

Evidence from the reports demonstrated that students were being given very challenging work, despite it being a relatively short placement, and the reports also showed that the students gained invaluable experience and knowledge as a result.

#### **Access to a communications specialist**

Providing students with access to a communications specialist to help improve their skills in this area. Discussions with the students indicated that they had benefited enormously from this initiative.

#### **Arrangements for an Industrial Advisory Board meeting to involve students**

Arranging an Industrial Advisory Board meeting that involved meeting with the students was considered a very good forum for providing industrial contact, as well as an opportunity for exchanging ideas and views about the degree programmes.

### **University of Glamorgan**

Dr David Tann Tel: +44 (0)1443 482164  
 Email: [dbtann@glam.ac.uk](mailto:dbtann@glam.ac.uk).

- Industrial Advisory Board

#### **Industrial Advisory Board**

The main objective of the Civil Engineering Industrial Advisory Board is to work in collaboration between academia and industry, to develop mutually supportive initiatives to promote learning and career opportunities for students on Civil Engineering courses.

It has been singularly effective in meeting its objective in a number of ways: -

- practitioners giving lectures to students
- industrial placements
- facilitating site visits
- facilitating site exercises
- enabling students to participate in schemes for the Regeneration of the South Wales Valleys
- research and development

### **Loughborough University**

Professor Tony Thorpe Tel: +44 (0)1509 223771

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

- Outdoor management course
- The Industrial Sponsorship Scheme
- The use of “Design, Build and Test” exercises at open days.
- Departmental conference day and the subsequent publication of the papers in conference proceedings.
- The third year group-based MEng design project
- The development of sustainable solutions to engineering problems through the final year MEng development project which is based on the annual New Civil Engineer Communication Competition.
- The provision of advice to the students on safe working practices on some of the laboratory worksheets.

#### **Outdoor management course**

The four-day Teamwork and Leadership module for 3<sup>rd</sup> year MEng students. This is based on an outdoor management course that takes place at the Hollowford Training Centre in Castleton; the course has been developed in conjunction with a professional training company and, from 2006, will include MEng mechanical engineering students. On the course the students learn, amongst other things, how to balance the needs of the task, team and individual; experience different types of leadership styles and skills; learn how to be critical observers; gain an ability to deal with situations for which they have no previous technical skill and learn more about themselves through self evaluation.

#### **The Industrial Sponsorship Scheme**

The visiting team was extremely impressed by the Department’s arrangements for industrial placements. All students on the BEng and MEng programmes have an opportunity to undertake a 12 month industrial placement. Those students already registered on an industrial sponsorship scheme are able to obtain work from their sponsor; those without sponsorship are still very well supported and assisted by the Department. Students successfully completing the placement are awarded a Diploma in Industrial Studies (DIS).

#### **Departmental conference day and the subsequent publication of the papers in conference proceedings.**

The most significant individual project, the research project, occurs in the final year of both the MEng and BEng courses. Students choose their research topic from their own ideas or from a series of titles provided by the staff. Each student works independently but with the guidance of a supervisor to an agreed project definition and set of assessment criteria. BEng students produce a poster outlining the key elements of the project and also give an oral presentation to supplement their dissertation. MEng students produce a journal-style paper and present it at a conference day to their supervisors, moderators and their peers. These papers are then compiled into a volume of conference proceedings.

#### **The third year group-based MEng design project**

Third year MEng students undertake a 30 credit group-based design exercise. This is based around a real site that is identified by a member firm of the Industrial Sponsorship scheme. The students are provided with real site data from the industrial partner and visit the site. This project work is an enhanced and extended version of that undertaken by the final year BEng but involves a different site and different client organisations; none of the teaching is common with the BEng students. The design thread is completed in the final year of the MEng programme with the Design and Process Management project.

Overall, the visiting team was impressed with the design thread in the BEng and MEng programmes. In particular, the use of a real site with real data and the support of an industrial partner in the 3<sup>rd</sup> year MEng project was considered to be an example of good practice. The

project work was student-led and the brief was sufficiently open-ended for the students to develop and demonstrate their independent learning skills. In addition, ample opportunity was provided for the students to gain experience of the integrated nature of civil engineering design through consideration of health and safety risk management, sustainable construction, buildability, durability, financial matters and other aspects of design. The visiting team considered that many of the output standards required of MEng graduates could be readily demonstrated through this module.

### **University of Moratuwa**

Professor Niranjanie Ratnayake

Email: [head@civil.mrt.ac.lk](mailto:head@civil.mrt.ac.lk)

- The Level 1 Design module
- The 24- week industrial training scheme
- The use of external bodies to deliver specialist extra curricular courses
- The Mentoring programme

#### **The Level 1 Design module**

Students undertake a good first year module CE 195 Engineering Design which introduces students to several selected design case studies and the stated learning outcome of this module is to ensure that students have an appreciation of design at a broad level.

#### **The 24- week industrial training scheme**

The six months compulsory industrial placement is a credit-bearing part of the degree but it does not contribute the final classification, as the credit has no GPA allocation. The comments in the students' daily diary book made by their supervisor varied. The Manager of the Industrial Training programme explained that they have recently introduced one-to-one monitoring for the placement to ensure that it is working satisfactorily and, if not, they will address the issues by, for example, finding a new placement for the student. The industrial representatives met by the visiting team expressed their preference for the new six months placement period and felt that it is more structured than before and also more closely monitored.

Some of the students' reports reviewed by the visiting team indicate that they do not contain a reflective statement nor put the report in context. There is a need to develop the students critical thinking and these industrial placement reports are another area that could be used to encourage students to develop this thought process. The Industrial Training program is another area earmarked for strengthening under the World Bank Quality Enhancement Fund award.

#### **The use of external bodies to deliver specialist extra curricular courses.**

The Toastmasters Club of Sri Lanka offers a programme covering presentation skills and speaking at public meetings. The junior version of the Toastmasters Club, the Gavel Club, is a way for students to continue to develop these skills.

#### **The Mentoring programme**

There is a structured mentoring programme in place. This was first introduced in June 2003 and aims to produce graduates with good soft skills who would be sought after by industry. The programme focuses on areas such as communication skills, leadership, teamwork, and career search skills, etc. This programme is popular with the local employers and students.

### **Napier University**

Dr David Reid Tel: +44 (0)131 455 2473

Email: [d.reid@napier.ac.uk](mailto:d.reid@napier.ac.uk)

- Input from the Industrial and Professional Advisory Committee (IPAC)
- Conference with proceedings to showcase MEng final year research
- Engineering Futures module

#### **Industrial and Professional Advisory Committee (IPAC)**

The lead input from the Industrial and Professional Advisory Committee (IPAC) to the development of the 2 new MEng (Hons) programmes. The Team were impressed with the influence the IPAC have within the Department. The IPAC was central to writing the MEng programmes now on offer at the University. IPAC members are also involved in the mentoring of students and the assessment of 4<sup>th</sup> and 5<sup>th</sup> year projects.

#### **Conference and Proceedings**

The proposal to have a conference with proceedings to showcase the MEng final year research.

#### **Engineering Futures module**

The proposed Engineering Futures module (part of the new MEng (Hons) programme) which concludes with a multi-national group-based project involving students from Napier, Denmark, France, Germany and the Netherlands.

#### **Nottingham Trent University**

Dr Mark Davison Tel: +44 (0)115 848 2121

Email: [mark.davison@ntu.ac.uk](mailto:mark.davison@ntu.ac.uk).

- Operation of a sandwich year
- Closer collaboration between cognate disciplines

#### **Sandwich year**

The vast majority of students are encouraged to and undertake the sandwich year. Good support is given for training such as CV preparation and mock interviews. There is a wide variety of placement opportunities available as many employers are interested (particularly for site work.)

#### **Collaboration between cognate disciplines**

Co-location of related cognate disciplines encourages wider ranging communication which can only help students when entering the workplace on graduation. An example of this is 'crazy week' the basic principles of which are sound. The good practice elements are that students learn to work with students from other professions from an early stage and to 'see the world' from an entirely different perspective before they become too entrenched and narrow-minded in terms of solutions to problems. However some lessons can be learnt as to how to make it more useful and effective, following its initial trial this year.

#### **University of Peradeniya**

Nihal Somaratna

Email: [head@civil.pdn.ac.lk](mailto:head@civil.pdn.ac.lk)

- The 24- week industrial training scheme
- Payment of professional body fees for two local professional bodies
- The Instructors scheme
- The use of external bodies to deliver specialist extra curricular courses
- The specialist computing laboratories housed within the main laboratory.

#### **The 24- week industrial training scheme**

Each student is now required to undergo a total of 24 weeks of mandatory industrial training under the supervision of a practising engineer. The Industrial Training Programme is arranged by the Industrial Training and Career Guidance Unit (ITCGU) of the Faculty in collaboration with the National Apprentice and Industrial Training Authority (NAITA) of Sri Lanka.

During the period of training the student is required to maintain a daily diary certified by the engineer in-charge. After completion of the training, the student is required to submit a comprehensive report along with the diary. The students are individually assessed at an interview by a panel, which comprises two members from the ITCGU, a practising civil engineer from the panel of examiners provided by the Faculty Board and a representative from the Department and from NAITA. The panel, based on the report, diary and the viva voce, assigns grades.

It was noted from the students' reports that the benefit they gained from this placement varied and there was no uniformity in the training experience. The Team believe that if the Department were able to work with the ITCGU to prepare guidelines for industrial mentors that this would help to identify and share best practice. The Department should also consider introducing a structured programme of monitoring its industrial placements to ensure that where students are unhappy with their placement this can be easily identified and any problems promptly addressed. The Department should refer to section 2.6 of the appropriate JBM Guidelines and the CITB website.

Although this Placement unit is worth 3 credits they do not contribute to the overall degree classification, as there is no GPA allocated to this course unit.

#### **Payment of professional body fees for two local professional bodies**

The University pays the professional body fees for two local professional bodies as a means of encouraging staff development

#### **The Instructors scheme**

The Department has a scheme in place that enables new graduates who are thinking of returning to university following their graduation to undertake a postgraduate programme of study to work as paid instructors to assist the undergraduates in their laboratory and tutorial classes. This scheme is especially useful in the first year as graduates can support the freshman students as they develop their skills in English and help them understand instructions for laboratory work.

#### **The use of external bodies to deliver specialist extra curricular courses**

The Peradeniya Civil Engineering Alumni Society also worked with the Toastmasters Club of Sri Lanka to offer a ten-week programme of instruction for 30 top students across the Faculty of Engineering. One of the conditions of the award was that the selected students should then cascade their knowledge down to the other students on the programme and the Gavel Club has been established to enable these transferable skills to be passed on. This is an area of good practice as it develops students' power of advocacy.

#### **The specialist computing laboratories housed within the main laboratory**

The Department of Civil Engineering maintains three Computer Aided Design laboratories and computing facilities in all the other laboratories, for the use of the students. The Team believed

that this allocation of specialist computers in each of the main laboratories was an area of good practice.

### **University College London**

Professor Nick Tyler Tel: +44 (0)20 7679 1562  
Email: [n.tyler@ucl.ac.uk](mailto:n.tyler@ucl.ac.uk).

- The pre-qualification year for the MSc programme for holders of degrees not in civil engineering.
- The examination to assess entry to the MSc programme in Civil Engineering
- The personal tutoring system

#### **Pre-qualification year**

Applicants with a degree in a related subject (e.g. mathematics, physics or geology) may take a qualifying year before moving into the standard MSc programme. This provides grounding in fluids, soils, structures and materials engineering. The programme consists of 2nd and 3rd year core civil engineering subjects. Students are also required to complete a research project identical to the undergraduate 3rd year project.

#### **Entry Examination for MSc programme**

The normal entry requirement to the MSc programme is either completion of the qualifying year or a good second class honours degree in civil or structural engineering or a closely related subject, from a UK university or the equivalent from an overseas institution. To help students decide if the MSc programme is suitable for them and to assist the Department in the assessment process they have now introduced an entry test as one of the requirements for admission. The test must be completed by anyone wishing to apply for the one-year Civil Engineering MSc programme but not by those wishing to apply for the pre-qualifying year.

The test consists of a series of questions selected at random from various parts of a typical civil engineering undergraduate course and students applying for the masters' course should feel comfortable with problems such as these.

In previous years, whilst the Department has made a number of offers to students wishing to enrol on an MSc programme, the numbers that finally enrol on the programme is small. For example in 2006 an initial review of 250 applications led to offers being made to 50 students of which 2 enrolled. The entry test has been made a requirement to discourage spurious applications.

#### **Personal Tutor scheme**

All first and second year students have a personal tutor who is responsible for a tutorial group of four to five students. The personal tutor oversees the students' academic progress and assists with any personal problems. It is a mandatory requirement that students meet with their personal tutor once a week and these meetings provide an opportunity for discussion of a wide variety of topics related to all aspects of the degree programme. Laboratory classes are organised by the tutorial groups and most coursework is returned via the tutor.

The Personal tutor is responsible for arranging site visits provided by professional engineers during each year of the degree programme. Visits to construction sites and to the offices of consulting engineers are designed to enhance student awareness of the nature and scope of professional engineering practice. Coursework is also set by the personal tutor and these Tutorial Reports and Essays should be approximately 1500 words and contribute to the overall module mark. Additional mathematics classes are available if required.

### **University of Ulster**

Dr William Cousins - Tel: +44 (0)2890 366301,  
Email: [w.cousins@ulster.ac.uk](mailto:w.cousins@ulster.ac.uk).

- Industrial placement scheme
- Industrial links
- Facilities
- Teaching of 'Sustainable Development' throughout the courses.
- Site visits

#### **Industrial Placement scheme**

The students identified this area of provision as one of the strengths of the School and one of the main reasons why they chose to study at the University of Ulster. The scheme is well structured and supported by the staff. The use of student competence grids, particularly in the assessment of the students was seen as a positive development.

#### **Industrial links**

The School has strong links with industry. The School has acted upon recommendations in the previous report and the Civil Engineering Industrial Liaison Panel now meets once per semester. The School's strength in this area can be seen by the industrial placement programme, the number of site visits organised by the School, the industrial involvement in lecturing and projects, the School's consultancy activities and more recently by Faber Maunsell sponsoring a lecturer who spends three days in the School and two days in industry per week.

#### **Facilities**

The Team commented on the excellent Learning Resources Centre and FireSERT laboratory.

#### **Teaching of sustainable development**

The Team was impressed with the teaching of sustainable development in the undergraduate and postgraduate courses. The Team was pleased to note that the students recognised the importance of sustainable development and were able to talk in depth on this issue. The Team agreed that the School was engaged in pioneering work and had been successful in drawing on the strength of its research groups and filtering these activities into the courses, particularly the PgD/MSc course.

#### **Site visits**

A number of site visits are undertaken in all years of the BEng (Hons) programmes. The recently established Student Engineering Society is encouraged to be involved in the organisation of additional site visits.

### **Wolverhampton**

Professor R W Sarsby Tel: +44 (0)1902 322263.

Email: [R.Sarsby@wlv.ac.uk](mailto:R.Sarsby@wlv.ac.uk).

- Construction Employers Fair

#### **Construction Employers Fair**

The Visiting Team was pleased to receive a report on the Construction Employers Fair, which had been organised around two themes of promotion to schools and career opportunities for undergraduates. Eighty-seven pupils attended the morning session from local schools and between 400 – 500 undergraduates attended the afternoon session.

**Annex No. 2****Details of Membership - 2006****Joint Board of Moderators**

Chairman	Dr J Hill
Members	Professor C Bailey Mr P W Bedford Professor B G Clarke Mr P Dipper /Mr S Spender Mr T A Ealey Mr S Evans Mr D Hoskins Mr K Linje /Mr T Edmunds Professor D Lloyd-Smith Mr H MacIntyre Mr F Montgomery Mr C Nason Professor G Parke Professor R Plank Professor W Powrie Dr D B Reid Mr A Silver Ms F Wainwright Dr C Williams
EC <sup>UK</sup> Liaison Officer	Mr M Robbins
International Sub-Committee Chair	Professor B Barr
HLTQSC Chair	Mr E Hewitt
Further Learning Sub-Comm. Chair	Professor R Jackson/Professor B G Clarke
Secretariat (ICE)	Mr M Barrett/Mr D Mitchell Ms E Ryan Ms D Seddon
Secretariat (IHIE)	Ms M DaCosta Ms J Walker
Secretariat (IHT)	Ms R Sprunt Ms S Stevens
Secretariat (IStructE)	Mr A Brereton Mr D Byrne Ms M Dignan Ms L Pollard

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

Chairman	Mr E Hewitt Mr D Hoskins Mrs J Knight Mr B Pyper Mr C Bedford Mr P Dipper
Secretariat	M DaCosta D Byrne M Barrett/D Mitchell 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 Professor B Lee Mr R McKittrick Professor C Melbourne Professor D Nethercot Professor N Smith
Secretariat	M Dignan M Barrett/D Mitchell E Ryan D Seddon

**Further Learning Sub-Committee**

Chairman	Professor R Jackson/Professor Clarke Professor M Barnes Mr R Chantrelle/Mr K Howatt Professor B Clarke/Dr R Lark Mr P Cooper Mr E Hewitt Mr J C Joel/Mr J Ingle Ms D Larkman Dr J Keer Mr L Parker
Secretariat	M Dignan M Barrett/D Mitchell M DaCosta E Ryan D Seddon S Stevens

Annex 3 Student Intake Numbers 2006	MEng			BEng (Hons) CEng			MSc			PGDip			IEng Degree			HNC	HND	NC	ND	Total Students
	Home	OS	Total	Home	OS	Total	Home	OS	Total	Home	OS	Total	Home	OS	Total	Total	Total	Total	Total	
Aberdeen	24	0	24	42	18	60														84
Abertay Dundee													11	14	25					25
Anglia Ruskin University													9	0	9		40			49
Bath	39	8	47	19	5	24														71
Belfast	67	0	67	55	36	91	10	1	11											169
Belfast Institute of Further & Higher Education																20	15	21		56
Bell College of Technology																				
Birmingham	61	19	80				45	42	87	2	11	13								180
University of Bolton													22	4	26	59				85
Bradford	3	0	3	55	15	70							10	5	15					88
Bridgend College																14	4			18
Brighton	6	3	9	42	8	50														59
Bristol	60	9	69	5	7	12														81
Burton College																21	1	18		40
Cambridge	228	61	289				8	0	8											297
Cardiff	82	4	86	48	19	67	9	15	24											177
City	10	2	12	71	24	95	18	10	28											135
Coleg Menai																				
Coventry				34	4	38	24	10	34	4	0	4	34	2	36	34	14			160



Leeds Metropolitan University														26	2	28			85			113	
Lincoln College																			15		15	2	32
Liverpool	33	4	37	60	17	77	7	9	16														130
Liverpool John Moores				25	3	28													32	20			80
London (Imperial)	61	29	90				141	55	196														286
<b>Students 2006</b>	<b>MEng</b>			<b>BEng (Hons) CEng</b>			<b>MSc</b>			<b>PGDip</b>			<b>IEng Degree</b>			<b>HNC</b>	<b>HND</b>	<b>NC</b>	<b>ND</b>	<b>Total Students</b>			
	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>				
London (UCL)	21	11	32	19	20	39	2	2	4													75	
Loughborough	41	0	41	45	4	49																	90
Manchester	46	7	53	39	14	53																	106
Mid Kent College																			32		10	10	52
Napier				8	0	8	47	31	78				16	0	16								102
New College, Nottingham																			36		16		52
Newcastle	34	0	34	50	3	53	46	46	92	8	5	13											192
Newcastle College																							
North East Wales Institute																							
North Lincolnshire College																							
North West Institute of Further and Higher Education																							
City College Norwich																			18	21			39

Nottingham	99	27	126				19	39	58	1	0	1								185
Nottingham Trent				19	1	20							22	3	25					45
Oaklands College																18		26		44
Oxford	118	44	162																	162
Paisley University													22	0	22					22
Perth College																				
Plymouth	8	0	8	52	2	54	11	3	14	0	0	0	49	0	49			7		132
Portsmouth	7	0	7	47	5	52	26	12	38	0	0	0	24	1	25			15		137
<b>Students 2006</b>	<b>MEng</b>			<b>BEng (Hons) CEng</b>			<b>MSc</b>			<b>PGDip</b>			<b>IEng Degree</b>			<b>HNC</b>	<b>HND</b>	<b>NC</b>	<b>ND</b>	<b>Total Students</b>
	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	
Reading College																				
Salford	5	1	6	25	4	29							29	2	31					66
Sheffield College																				
Sheffield University	84	10	94	5	3	8	16	33	49	2	7	9								160
Southampton Solent University																39				39
Southampton University	45	2	47	23	7	30	33	16	49											126
South Bank				35	5	40	17	10	27	4	1	5	33	4	37	71				180
Stow College																				
Strathclyde	39	0	39	67	1	68														107
Suffolk																				
Surrey	11	0	11	61	10	71	19	39	58											140
Swansea	18	0	18				0	4	4	0	1	1								23

Swansea Institute																12	3			15
Swindon College																10	10		8	28
Ulster				32	0	32							14	0	14					46
Warwick	17	2	19	22	4	26														45
University of Wales, College Newport													5	0	5	27	10			42
College of West Anglia																				
University of the West of England													30	0	30		9			39

Students 2006	MEng			BEng (Hons) CEng			MSc			PGDip			IEng Degree			HNC	HND	NC	ND	Total Students
	Home	OS	Total	Home	OS	Total	Home	OS	Total	Home	OS	Total	Home	OS	Total	Total	Total	Total	Total	
Wigan & Leigh College									0											
Wolverhampton													16	4	20					20
<b>Total</b>	<b>1628</b>	<b>254</b>	<b>1882</b>	<b>1401</b>	<b>277</b>	<b>1678</b>	<b>652</b>	<b>562</b>	<b>1214</b>	<b>34</b>	<b>42</b>	<b>76</b>	<b>511</b>	<b>62</b>	<b>573</b>	<b>538</b>	<b>286</b>	<b>148</b>	<b>20</b>	<b>6415</b>

This data has been provided by Universities and Colleges. Missing data means that the overall totals shown in this chart are not a true reflection of the total number of students studying civil engineering programmes of study.

Annex 4 Graduate Numbers 2007	MEng	BEng (Hons) CEng	MSc	PGDip	IEng Degree	HNC	HND/FD	NC	ND	Total Graduates

	Home	OS	Total	Home	OS	Total	Home	OS	Total	Home	OS	Total	Home	OS	Total	Total	Total	Total	Total	
Aberdeen	13		13	25	4	29			0			0			0					42
Abertay Dundee			0			0			0			0	23		23					23
Anglia Ruskin University			0			0			0			0	7		7	24				31
Bath	33	3	36	16	3	19			0			0			0					55
Belfast Queens University	24	3	27	36	22	58	11		11			0			0					96
Belfast Metropolitan College			0			0			0			0			0	13	8	18		39
Birmingham	23	9	32	18	10	28	25	35	60	2	2	4			0					124
University of Bolton			0			0			0			0	34	3	37	40				77
Bradford	1	5	6	10	21	31			0			0		1	1					38
Bridgend College			0			0			0			0			0					0
Brighton			0	15	6	21	17	2	19	4		4			0					44
Bristol	41	4	45	7	2	9			0			0			0					54
Burton College			0			0			0			0			0					0
Cambridge	54	5	59			0	7	3	10			0			0					69
Cardiff	53	3	56	29	24	53	10	18	28			0			0					137
City	11		11	22	8	30			0			0			0					41
Coventry	1		1	31	3	34	13	5	18	2		2	20	7	27	36	9			127
Derby																	3			3
Dundee College			0			0			0			0			0		85	12		97
Dundee University	9		9	34		34	15	24	39			0			0					82
<b>Graduates 2007</b>	<b>MEng</b>			<b>BEng (Hons) CEng</b>			<b>MSc</b>			<b>PGDip</b>			<b>IEng Degree</b>			<b>HNC</b>	<b>HND</b>	<b>NC</b>	<b>ND</b>	<b>Total Graduates</b>

	Home	OS	Total	Home	OS	Total	Home	OS	Total	Home	OS	Total	Home	OS	Total	Total	Total	Total	Total		
Durham	32		32	7		7			0			0			0						39
East London			0	33	14	47	13	11	24	11	3	14			0	7	4				96
Edinburgh	32	2	34	22	1	23		13	13		1	1			0						71
Exeter College			0			0			0			0			0	8					8
Exeter University (entry to all engineering)	12		12	15		15			0			0			0						27
Forth Valley College			0			0			0			0			0						0
Glamorgan			0			0	3	6	9		2	2	19	5	24	19	1				55
Glasgow University			0			0			0			0			0						0
Glasgow Caledonian University			0			0			0			0	36		36						36
Greenwich			0	12	10	22	4	3	7			0	5	2	7	10	5				51
Heriot-Watt	19		19	15		15	19	11	30	2	2	4			0						68
Kingston			0	48	4	52	34	10	44	8	1	9	11	2	13						118
Leeds	38	3	41	30	27	57			0			0			0						98
Leeds Metropolitan University			0			0			0			0	35	3	38		45				83
Lincoln College			0			0			0			0			0						0
Liverpool	9	7	16	17	15	32	7	8	15			0			0						63
Liverpool John Moores			0	18	3	21	8		8	13		13			0	15	5				62
London (Imperial)	50	25	75			0	72	110	182			0			0						257
<b>Graduates 2007</b>	<b>MEng</b>			<b>BEng (Hons) CEng</b>			<b>MSc</b>			<b>PGDip</b>			<b>IEng Degree</b>			<b>HNC</b>	<b>HND</b>	<b>NC</b>	<b>ND</b>	<b>Total Graduates</b>	
	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	

London (UCL)	25	3	28	18	15	33	3	3	6	2		2			0					69
Loughborough	23	1	24	26	3	29	15	53	68			0			0					121
Manchester	24	2	26	12	5	17			0			0			0					43
Mid Kent College			0			0			0			0			0					0
Napier	13		13	50		50	33	9	42	2	1	3	36		36					144
New College, Nottingham			0			0			0			0			0					0
Newcastle	34	1	35	11	3	14	57	76	133	1		1			0					183
Newcastle College			0			0			0			0			0	21	13	23		57
City College Norwich			0			0			0			0			0					0
Nottingham	59	7	66	26	17	43	10	34	44			0			0					153
Nottingham Trent			0	13		13	12	7	19	4		4	24	1	25					61
Oaklands College			0			0			0			0			0	22		17		39
Oxford	28	4	32			0			0			0			0					32
Paisley University			0			0			0			0	41		41					41
Perth College			0			0			0			0			0					0
Plymouth	6		6	21	4	25	8	3	11	1		1	29	5	34			8		85
Portsmouth	8		8	27	9	36	36	10	46			0	14	1	15			2		107
<b>Graduates 2007</b>	<b>MEng</b>			<b>BEng (Hons) CEng</b>			<b>MSc</b>			<b>PGDip</b>			<b>IEng Degree</b>			<b>HNC</b>	<b>HND</b>	<b>NC</b>	<b>ND</b>	<b>Total Graduates</b>
	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Home</b>	<b>OS</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	
Salford	3		3	9		9	29	10	39	2		2	8	1	9					62
Sheffield University	36	4	40	15	3	18	7	33	40		2	2			0					100
Southampton Solent University			0			0			0			0			0	30	13			43

Southampton University	35	2	37	18	3	21	39	31	70	4	1	5			0					133
South Bank			0	15	3	18	12	11	23			0	10	6	16	24				81
Strathclyde	37		37	34		34			0			0			0					71
Surrey	25	1	26	25	7	32	17	29	46	1	5	6			0					110
Swansea	10	12	22	14	17	31			0			0			0					53
Swansea Institute			0			0			0			0			0	14	6			20
Swindon College			0			0			0			0			0					0
Ulster			0	31		31			0			0	18		18					49
Warwick	30	2	32	14	7	21			0			0			0					53
University of Wales, College Newport			0			0			0			0	8	1	9	20	9			38
University of the West of England			0			0			0			0	15		15	3	5			23

Graduates 2007	MEng			BEng (Hons) CEng			MSc			PGDip			IEng Degree			HNC	HND	NC	ND	Total Graduates
	Home	OS	Total	Home	OS	Total	Home	OS	Total	Home	OS	Total	Home	OS	Total	Total	Total	Total	Total	
Wolverhampton	0	0	0	10	4	14	2	2	4	0	0	0	0	0	0	46	5	0	0	69
<b>Total</b>	<b>851</b>	<b>108</b>	<b>959</b>	<b>849</b>	<b>277</b>	<b>1126</b>	<b>538</b>	<b>570</b>	<b>1108</b>	<b>59</b>	<b>20</b>	<b>79</b>	<b>393</b>	<b>38</b>	<b>431</b>	<b>352</b>	<b>226</b>	<b>70</b>	<b>0</b>	<b>4351</b>

This data has been provided by Universities and Colleges. Missing data means that the overall totals shown in this chart are not a true reflection of the total number of students studying civil engineering programmes of study.