

Wallingford Procedure Users Group

Education and Training Sub-Committee

Report of Meeting with John Whitwell, Director of Education
and Training

Institution of Civil Engineers, Great George Street, London
19 November 1991

Present: Robert Armstrong Watson Hawksley
 Prof David Balmforth Sheffield City Polytechnic
 Gareth Catterson Integrated Hydrosystems
 Peter Myerscough Yorkshire Water
 John Whitwell Institution of Civil Engineers

Context

The meeting had been arranged following discussion in the Wallingford Procedure Users Group arising from the Spring Meetings 1991. The Education and Training Sub-Committee had been asked to approach the Institution of Civil Engineers to discuss three areas of concern arising out of the experience of members over the professional training of graduate Civil Engineers under agreement. The three areas were:

- i the perception amongst graduate Civil Engineers and their Supervising Civil Engineers that professional experience in drainage area planning was less likely to lead to a successful route to corporate membership than a more traditional area, such as structural design
- ii specialist units in urban hydrology were less likely to meet with approval during accreditation of undergraduate courses than some of the non fundamental engineering subjects
- iii the revised procedure for accrediting training courses which places responsibility on Supervising Engineers for assessing value has led to wide variations of practice.

Discussion

Discussions were informal and helpful, and the following points were raised in response to the above.

Currently there are two routes to chartered membership of the Institution. The ICE 43 route, involving PEI and PEII stages under the 'Chilver' system, which is currently being phased out, and the new ICE101 route. Under ICE101 the principal criteria used by examiners is that each successful candidate must demonstrate their ability to solve reasonably complex problems, and that they must have experience of analysis, detailed design and implementation of a programme of works. The analysis, detailed design and implementation may relate to the same or different

works. The Institution maintains a wide interpretation of what constitutes a complex problem, and certainly it may relate to any of the branches of Civil Engineers such as, say, transportation, research or drainage area planning. The Sub-committee was referred to the actual wording of ICE43 and ICE101, extracts of which are attached.

Examiners of candidates for professional interview undertook a two stage induction process. Each candidate was assigned two examiners. One, the lead examiner, would automatically have wide examining experience covering at least 100 reviews. One examiner would be a specialist in the particular area of expertise of the candidate, the other would have a more general background.

Supervising Civil Engineers were given clear notes for guidance, copies of which were provided for the Sub-committee. Relevant extracts of the revised notes for guidance (which have been distributed in the last 3 months) are appended. Regional training officers visit Supervising Civil Engineers on a regular basis to give guidance on ICE101.

The Institution has always believed that the Civil Engineering undergraduate curriculum should be broad, but should also adequately cover fundamental principles. A review of engineering courses is planned by the Engineering Council, which will cover 2 year courses for incorporated engineers, three year courses for chartered engineers and the four year MEng which would provide for the specialists of the industry. The Joint Board of Moderators would be undertaking the review on behalf of ICE, IStructE and CIBSE. Links with the RICS and CIOB would be maintained through the Construction Industry Council. The review would take at least 18 months.

The old system of accrediting individual continuing professional development courses had been abandoned in favour of credits being awarded by Supervising Civil Engineers. It was felt that SEC's were better placed to measure the value of education and training to the individual. However the Institution was looking at quality assurance systems for providers of CPD - a form of accreditation of the organisation. This should help to reintroduce some consistency in the future. ICE 108 (extract attached) outlines the 30 day training requirements. Examiners were expected to spend around five minutes of the professional interview exploring the relevance of training courses to the candidate.

John Whitwell undertook to write to the Sub-committee reinforcing the Institution's view that there was no particular branch of civil engineering that provided an easier or more certain path to corporate membership, but that any branch of civil engineering was acceptable provided it demonstrated an adequate degree of complexity, and provided the candidate had experience covering analysis, detailed design and implementation.



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Director General and Secretary
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JAW/MK/4291

21 November 1991

Professor David J Balmforth
Sheffield City Polytechnic
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Dear David

EDUCATION AND TRAINING FOR CIVIL ENGINEERS WITHIN THE WATER SECTOR

I was pleased to meet you and your delegation when they visited me at the Institution of Civil Engineers on 19 November 1991. I was pleased to be able to discuss with you your perceived problems regarding the route to full Corporate Membership for those in this area.

As promised, I have analysed the number in the Water Sector who are coming forward to the Autumn Professional Reviews and the figures show that we have 61 out of 800 in the Water Sector. I cannot tell without major analysis whether they are within the pipework rather than the structure/process area but my general experience indicates that at least 50% will be based on pipe networks in one form or another.

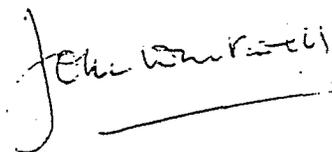
Following our discussion, I would like to emphasise that following the introduction of ICE 101, it is now very much the responsibility of Supervising Civil Engineers and delegated Engineers throughout the Industry to ensure that their trainees have experience in taking a reasonably complex problem in Civil Engineering, analysing it, developing a solution and then implementing the solution. The Examiners are tasked with satisfying themselves that the candidate is going to be a competent Chartered Civil Engineer well able to represent the profession and provide competent service to society.

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The Institution's Regional Training Officers are visiting all organisations on the Training Index at least once a year and if any of your Supervising or delegated Engineers need assistance, then they should contact their relevant Regional Training Officer or the Training Manager, R M Stancombe at Great George Street. Under the ICE 101 system, the responsibility has very clearly been put on the Supervising Civil Engineer's shoulders to ensure that their Training Schemes are developed to suit their specific requirements and this also extends to continuing professional development where the need for approval of courses by the Institution has been dropped in favour of Supervising Civil Engineers or delegated Engineers ensuring that continuing education is properly monitored and delivered in a cost effective manner.

Can I end by repeating that candidates from the Water Sector with pipe network experience should be just as capable of becoming Chartered Civil Engineers as those from any other sector, providing they meet the criteria within ICE 101. No candidate from any sector will be rejected unless the Examiners consider the submission, the interview, or the essays show the candidate has insufficient experience or competence to become a Chartered Civil Engineer. Candidates do however have to show a broad understanding of the Construction Industry as covered by the Institution's Core Objectives. There is no substitution for reading and understanding ICE 101 and if any of your members have not done so, then I would thoroughly recommend it for extensive study.

Yours sincerely



J A Whitwell
Director - Education Training & Membership

APPENDIX A

Training schemes

A1 Training schemes should recognise that there is a need for a core of knowledge and achievement common to all trainees, regardless of the type of work undertaken or the specific direction in which their interests take them. Therefore the Institution has drawn up a list of core objectives which must form an integral part of all approved Training Schemes.

A2 The core objectives have been prepared so that:
 (a) they encompass and relate to all types of civil engineering work; and
 (b) they do not depend on time-serving as a measure of achievement; and
 (c) the stated achievement criteria are, as far as possible, capable of objective assessment.

The definitions of and the achievement criteria for these core objectives are published in full in the Training Record (ICE 107).

A3 The core objectives in themselves do not provide the total framework within which training should take place. They must be supplemented by objectives written by the Supervising Civil Engineer for the employing organisation in order to cover the particular activities, and the administrative and management practices, of that organisation. These specific objectives must follow the pattern established for the core objectives, in that they should be stated in a similar style and have the same achievement criteria.

A4 The schedule of training objectives formed by combining the core and specific objectives is intended to provide the basis for ensuring that trainees achieve the level of competence required by the Institution before applying for a Training Review. The schedule should be devised and executed so that specialists are catered for as well as those undertaking a more conventional career in civil engineering.

A5 As illustrated by Figure A the schedule has three components:
 (a) professional and general
 (b) an engineering solution
 (c) the implementation process.

The engineering solution and implementation process components of the schedule are intended to develop the trainees' ability to apply their academic knowledge and subsequent training to the solution of a practical civil engineering problem of some complexity.

A6 For further details see Appendix D.

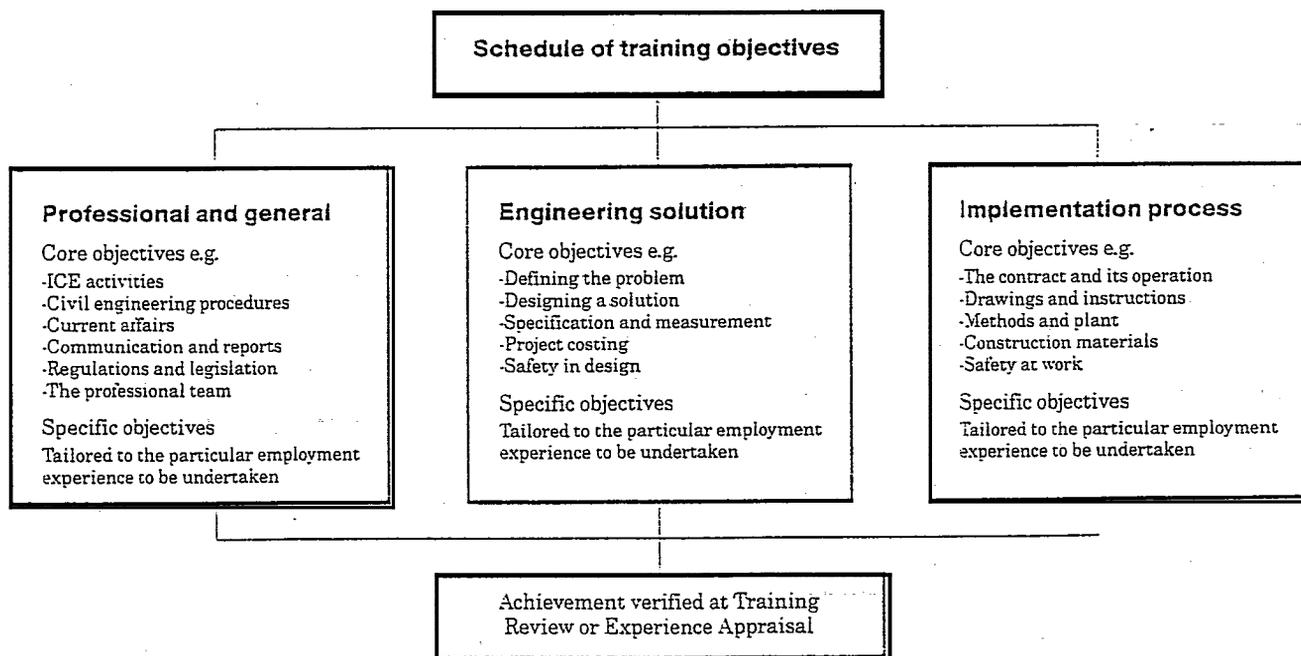
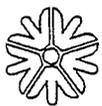
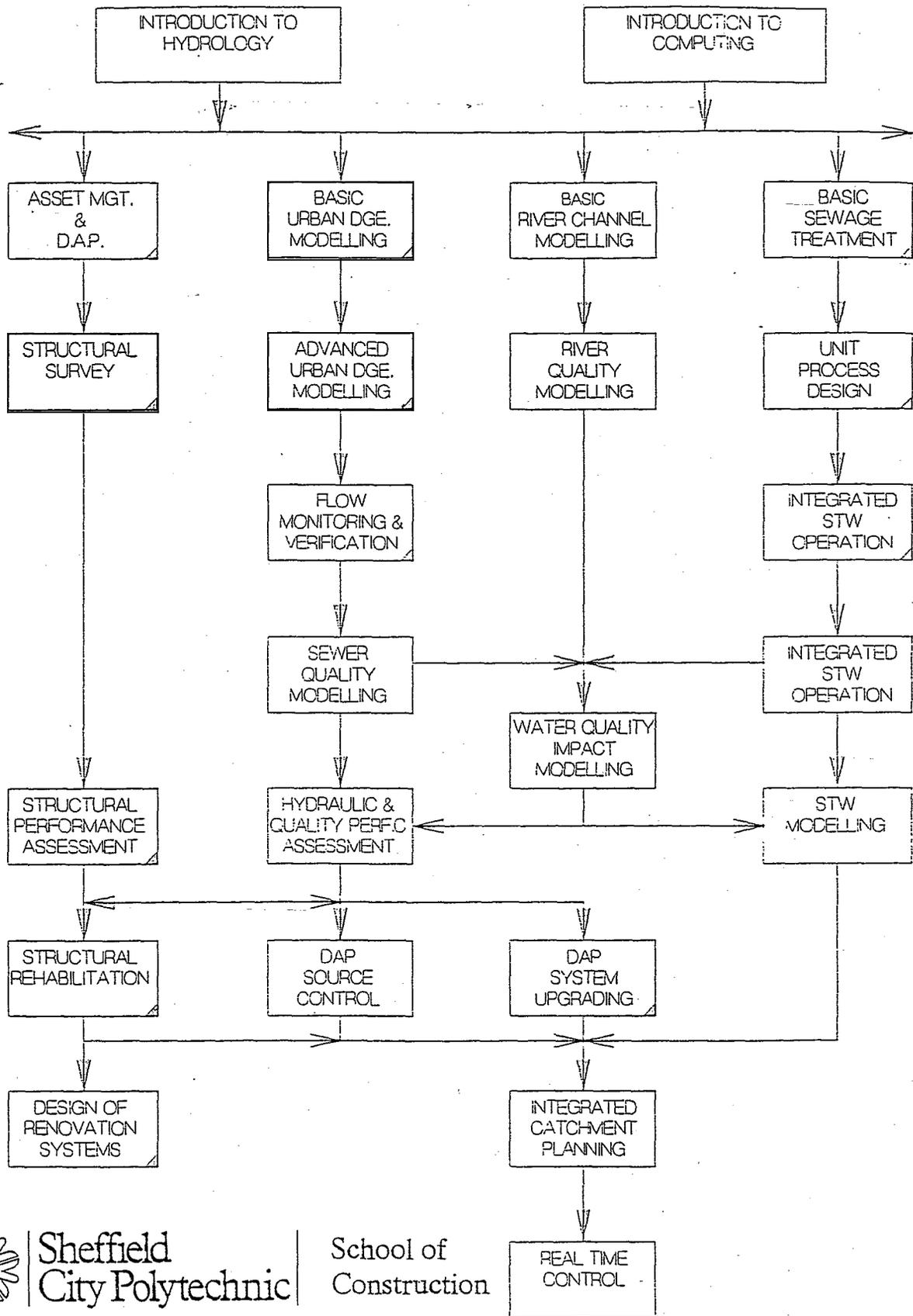


Figure A

Structured Scheme for Urban Drainage Training



Sheffield City Polytechnic

School of Construction

November 22 1991

**Mini - Paper 2: Report to the Education and Training Group
Prof. D Balmforth - Sheffield City Polytechnic.**

P Barraclough (Watson Hawksley) : Delegates may be interested to know that Watson Hawksley has a graduate taking his "civils" with a 6,000 population DAP as his submission.

Ans : Good to hear it!

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J Ashurst (St Helens MBC) : Could you please explain the "Structured Approach"?

Ans: Although everything is essentially aimed at post-graduate level, it also incorporates technician input. It is a means of continued professional development. Credit accumulation is flexible and is possible from a variety of sources.