



EMPLOYER-MANAGED WORK-BASED FURTHER LEARNING PROGRAMMES FOR COMPLETION OF THE EDUCATIONAL BASE FOR CHARTERED ENGINEER

1. Introduction

- 1.1 These guidelines set out the Joint Board of Moderator (JBM) guidelines for approved Employer-Managed Work-Based Further Learning Programmes (FLPs) intended to complete the educational base for a Chartered Engineer for holders of JBM-accredited BEng(Hons) degrees or equivalent. The guidelines comply with UK-SPEC and its supporting documents.
- 1.2 The guidelines are published by the JBM and have been approved by the Institution of Civil Engineers (ICE), the Institution of Structural Engineers (IStructE), the Institution of Highways and Transportation (IHT) and the Institute of Highway Incorporated Engineers (IHIE).
- 1.3 The formation of professional engineers in the UK has three stages:
- Attainment of an appropriate educational base, followed by
 - A period of postgraduate industrial development known as Initial Professional Development (IPD), culminating in a
 - Professional Review to assess and confirm that the required standards have been met.
- 1.4 Under the UK Standard for Professional Competence (UK-SPEC) (2004), published by the Engineering Council UK (EC^{UK}), one way for a candidate that holds accredited qualifications but not at the appropriate level to satisfy the educational base for registration as a Chartered Engineer (CEng) is to complete a period of Further Learning.
- 1.5 Further Learning comprises the additional educational achievement necessary to bridge the gap between an accredited BEng(Hons) degree and an accredited MEng degree. Where appropriate, elements of Further Learning can be integrated with IPD but must be recorded and assessed separately.
- 1.6 These guidelines set out a procedure for Further Learning to Masters level: the Employer-Managed Work-Based Further Learning Programme (FLP), for approval by the JBM. They are based upon the UK-SPEC document “The Accreditation of Higher Education Programmes” (AHEP) published in 2004. Where appropriate, the guidelines draw upon earlier guidance issued by EC^{UK}, JBM and others following the publication by EC^{UK} of SARTOR 3 in 1997.
- 1.7 These guidelines are intended for employers who wish to gain, via the JBM, approval from ICE/IStructE/IHIE/IHT to provide structured programmes of Further Learning to Masters level for BEng (Hons) graduate candidates and the for the candidates who have chosen the

Employer-Managed option. Separate guidelines for candidates undertaking the Self-Managed Further Learning Route, which is not part of an approved Employer-Managed Work-Based Programme, are available on the JBM website www.jbm.org.uk. The same basic principles apply as set out in these guidelines.

- 1.8 These guidelines refer only to Further Learning to Masters level and assume that all candidates have achieved a JBM-accredited BEng(Hons) Degree or equivalent (contact the relevant institution for further information on the equivalence of qualifications). For confirmation that a candidate needs to complete Further Learning in order to complete the educational base for a Chartered Engineer, please contact the relevant institution (ICE, IStructE, IHIE or IHT).
- 1.9 The guidelines cover:
- Educational and regulatory context for Further Learning.
 - Roles and responsibilities.
 - Learning outcomes.
 - Learning time.
 - Learning opportunities
 - Prior Learning.
 - Learning plan.
 - Candidate evidence.
 - Assessment.
 - Verification.
 - Application process
 - Supporting reading material.

2. Educational and Regulatory Context for Further Learning

- 2.1 UK-SPEC defines general and specific learning outcomes for both BEng(Hons) and MEng degree programmes. Further Learning is required where a candidate has already achieved and demonstrated BEng(Hons) level learning, but has not achieved and demonstrated the learning to Masters level.
- 2.2 Degree accreditation is undertaken by the JBM which is appointed by the member institutions of ICE, IStructE, IHT and IHIE. ICE, IStructE, IHT and IHIE are licensed by EC^{UK} to accredit degree programmes. To ensure that the same rigour and standards apply across all the Further Learning routes, responsibility for approving Employer-Managed Work-Based programmes rests with the member institutions that form the JBM.
- 2.3 Candidates who successfully complete a Further Learning Programme, which has been approved by the appropriate JBM institution according to these guidelines, will be deemed to have completed the educational base for registration as a Chartered Engineer.
- 2.4 These guidelines will be reviewed periodically in the light of feedback. The JBM Secretariat welcomes comments. Please contact them by email at jbm@ice.org.uk
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3. Roles and Responsibilities

3.1 Supervising Engineer

- (a) Each employer will need to appoint a Supervising Engineer (SE) to manage the FLP; to provide advice, guidance and support to the candidate; to oversee the candidate's progress through the FLP, and to manage the assessment process.
- (b) The SE will be the principal point of contact for the JBM. Where the employer has several offices, there may be more than one SE, but one SE should be nominated to manage the FLP on behalf of the employer and be the point of contact for the JBM.
- (c) The SE should be a Chartered Engineer with appropriate assessor training.
- (d) This is an extremely important and rewarding role. The SE is likely to be acting as mentor, professional adviser, tutor and monitor of standards, and they may also act as an assessor. Carrying out these responsibilities will contribute to the SE's Continuing Professional Development (CPD).
- (e) SEs will need to undergo an induction to the Further Learning process, which will be offered by the JBM.
- (f) The employer will also need to appoint an Assessor and an Internal Verifier.

3.2 Assessor

- (a) The assessor will make judgements on the evidence provided by the candidate, to assess whether standards have been met. Depending on the size of the employer and number of candidates, the SE and the assessor may or may not be the same person eg. a small employer in one location with few candidates, may need one person to perform both roles.
- (b) It is likely that a candidate will have more than one assessor covering different aspects of the programmes, perhaps technical and managerial aspects, depending on the breadth of learning taking place.
- (c) Normally, assessors should be Chartered Engineers. Essentially, however, they must be competent in the field they are assessing and competent to assess. An assessor who is not chartered must have credibility in the candidate's area of activity that they are assessing.
- (d) All assessors will be trained according to these revised guidelines.

- 3.3 Whilst the roles of SEs and assessors differ from Supervising Civil Engineers (ICE) and Mentors (IStructE, IHT and IHIE), employers will want to make most efficient use of their resources, and therefore these roles may overlap.

3.4 Internal and External Verifiers

- (a) The Internal Verifier ensures that the Further Learning process has been properly administered and also ensures that there is internal consistency between the Assessors. Although normally an employee of the Company, the Internal Verifier may be someone from outside the Company as long as they have agreed to the principles contained in these guidelines. The Internal Verifier may not also be the SE or an Assessor.
- (b) The process will be externally verified normally every five years by two JBM-appointed External Verifiers. The role of the External Verifiers is to ensure that the Employer-Managed FLP meets the required standards.

3.5 Details of the Further Learning verification process are given later. The following diagram sets out the framework for Further Learning achievement. The internal verifier and the assessor must be different people.

The JBM	External Verifier audits the process on behalf of the JBM and makes recommendations to the JBM about approval of the scheme	
The Employer	Internal Verifier audits the process on behalf of the employer	
	Supervising Engineer manages the FL programme	Assessors make judgements on the candidate's evidence
	Candidate generates and presents evidence of Further Learning	

4. Designing a Programme

- 4.1 Candidates and their employers will need to be clear about the key criteria for these programmes described overleaf.
- 4.2 When designing FLPs, employers should seek to ensure that there is a balance between the following requirements:
- Recognition of candidates' first degree achievement, ie. an accredited BEng(Hons) degree.
 - Candidates' individual career aspirations.

- The business requirements of the employer.
- The input, process, learning outcome and assessment requirements of the FLPs.

5. Learning Outcomes not Inputs

- 5.1 With the publication of UK-SPEC came the shift in emphasis for the professional body accreditation process from specifying inputs (such as A-level points or numbers of hours) to learning outcomes.
- 5.2 It will be essential to ensure that the level of learning is at Masters level. Learning that is 'additional' but not at M-level, or that is more of the same, or a duplication of learning already undertaken at the bachelor level, is not Further Learning.

MEng degrees differ from BEng degrees in having a greater range of project work... They also provide a greater range and depth of specialist knowledge, within a research and industrial environment, as well as a broader and more general educational base, to provide both a foundation for leadership, and a wider appreciation of the economic, social and environmental context of engineering.

(AHEP page 8)

- 5.3 AHEP sets out the learning outcomes for both BEng and MEng programmes. The enhanced learning outcomes for MEng, beyond those for BEng, are summarised in **Appendix 1**.
- 5.4 **Appendix 1** indicates that this level is more advanced than *knowledge and understanding*; in many cases it requires *ability and application*, and points towards *competence*. Masters level learning is also about being creative, innovative, and dealing with unfamiliar situations. The workplace provides many opportunities for all these types of learning to take place.
- 5.5 The descriptors for Masters (M) level published by the Qualifications Assurance Agency (QAA) are summarised below and are included here as further assistance to employers in understanding the requirement for Further Learning to be at M-level:

Much of the study undertaken at Masters level will have been at, or informed by, the forefront of an academic or professional discipline. Students will have shown originality in the application of knowledge, and they will understand how the boundaries of knowledge are advanced through research. They will be able to deal with complex issues both systematically and creatively, and they will show originality in tackling and solving problems. They will have the qualities needed for employment in circumstances requiring sound judgement, personal responsibility and initiative, in complex and unpredictable professional environments.

Understanding Qualifications: the Frameworks for
Higher Education Qualifications, QAA

- 5.6 Prior learning may be taken into account only if it can be confirmed to be at Masters level. The candidate must provide evidence of the Masters level learning outcomes.

6. Learning Time

- 6.1 There is no prescriptive requirement for programme length, or minimum quantum of learning time. However, the quantum of FLPs will need to be broadly equivalent to the last year of an MEng course.
- 6.2 Learning time will comprise both contact time (ie. learning in a structured environment) as well as other learning. Based on JBM research, it is expected that some 200-300 hours of a Candidate's total learning will be contact time, ie. formal learning in a structured environment. This might equate, say over a three to four year structured training programme, to some 10 days education/training per year. It is therefore unlikely that a Work-Based FLP will be completed in less than three years. This is consistent with, and will complement, employer training schemes approved by professional bodies. This contact time will vary depending on the base academic qualification held by the candidate For guidance on contact time refer to the leaflet "Further Learning: Completing the Educational Base" available on the JBM website. www.jbm.org.uk.
- 6.3 A greater proportion of the total work-based Further Learning will be derived from other learning, including evidence from the workplace to show that a candidate has reflected on structured learning and put this into practice.
- 6.4 The figures shown in **Appendix 3** are approximate and are included to assist employers and candidates when planning their FLPs. The key principle is that learning programmes are being judged on outcomes, not inputs.
- 6.5 An employer's JBM-approved work-based FLP may be integrated with a company approved training scheme). It must, however, be distinguished in content from a training scheme, and where an activity is undertaken that meets requirements for both, it must be recorded **separately and specifically** for the FLP demonstrating how the appropriate learning outcomes have been achieved in order to satisfy audit requirements.

7. Learning Opportunities

- 7.1 There will be many opportunities in the workplace for candidates to achieve the required learning outcomes, by a mix of contact time and other learning including private study. Contact time may include short courses, modules offered by a university department or attending presentations on new techniques. Site visits may be included, but only where they clearly identify and relate to learning outcomes; logging hours of attendance with no explanation of the learning and learning outcomes will not be accepted.
- 7.2 Other sorts of activities which might result in Further Learning include data collection/analysis/evaluation that ultimately lead to making recommendations, research for a report or for a presentation on a new area of knowledge, project work, team working and interviewing. Some examples related to MEng learning outcomes are shown in **Appendix 2**.

Prior Learning

- 8.1 Some candidates may have spent some time working in the civil engineering industry before they decide to prepare their Learning Plan. During this time they may have attended a number of short courses or developed their work-based Further Learning by the achievement

of appropriate knowledge and skills. This time is referred to as prior learning i.e. learning gained prior to the development of the Learning Plan.

- 8.2 Please note that prior learning can only be taken into account if it can be confirmed to be to Masters level. Such Assessed Prior Learning (APL) must be suitably recorded and should stand up to external verification by the Individual Case Committee.
- 8.3 If candidates submit evidence of prior learning as contributing to their Further Learning, this will be assessed by the FL Assessor (from the Individual Case Committee). In order for this to contribute, it should be learning that is clearly to M-level.
- 8.4 Candidates seeking the assessment of Prior Learning must map their evidence against the appropriate Learning Outcomes.

9. Learning Plan: Individual Candidate

- 9.1 Each candidate shall, with the help of colleagues and the approval of the Supervising Engineer, produce a Learning Plan. This plan will set out the means through which the learning outcomes are to be achieved (courses, projects, etc.); the timescale for their achievement; and the proposed evidence and arrangements for assessment. There is no standard template for a Learning Plan; the employer/learner is free to devise their own. However, a suggested format for an Employer-Managed Work-Based Further Learning Programme is shown in **Appendix 4** of this document.
- 9.2 The Learning Plan may change and develop along the way. Depending on experiences, the plan may be developed in stages or phases perhaps of 6 or 12 month duration, and should be re-assessed periodically to identify any gaps and agree future learning priorities.
- 9.3 The SE must approve any changes to the Learning Plan.
- 9.4 **Appendices 4 and 5** are suggested formats for a Learning Plan summary and for a portfolio summary sheet.

10. Candidate Evidence

- 10.1 Before embarking on a FLP, the candidate must provide documentary evidence to the SE to confirm their Bachelors degree. This will normally be a degree certificate and a copy should be included in the portfolio. If the degree is not accredited by JBM, or not listed on the EC^{UK} database, the candidate will first need to be assessed by the Individual Case Committee of the relevant JBM member professional body.
- 10.2 In order to ensure that an FLP is broadly equivalent to the final year of an MEng programme, comparable evidence will be desirable. This evidence has to demonstrate that the appropriate learning outcomes have been achieved. This might include:
- Preparation and presentation of reports on work-based projects and assignments.
 - Achievement gained on in-house and external courses.
 - Appropriate tests (eg. a relevant Health & Safety test).

- Documents produced by the candidate (eg. diaries, logs, correspondence, minutes of meetings, etc.).
- Testimony from senior colleagues in the workplace.

10.3 A template for a Learning Plan summary is available on the JBM website. A suggested framework for an individual candidate's Learning Plan summary is shown in **Appendix 4**, and an individual portfolio summary in **Appendix 5** of this booklet.

11. Assessment

11.1 The Supervising Engineer will manage the assessment of the Candidate. It will be a part of the Learning Plan, and will take account of the portfolio of evidence that the candidate has assembled. Assessment should be both formative ie. taking place as the learning progresses, as well as summative ie. when a particular piece of learning has been completed. Thus, assessment should encourage and guide the Candidate as well as providing judgements on achievement. Specific learning outcomes should be signed off along the way. The Assessor will assess the Candidate's evidence (see Section 3).

11.2 Assessment of the candidate's Further Learning will be according to the assessor guidelines set out in **Appendix 6**. Assessors must be trained in the assessment process, and this will be offered by the JBM. Verification of assessor training will be a part of the external verification process. It is recommended that assessors be qualified to the National Standard Unit A1 "Assess candidates using a range of methods".

11.3 A template for recording the assessment is available from the Institutions

12. Verification

12.1 The assessment carried out by the Assessor will be subject to verification. Verification is a check on both standards as well as process. Both internal and external verification are required. See the diagram on page 4.

12.2 The approving body, the JBM, will define the internal verification requirements with the employer when the first Work-Based Further Learning Programmes are approved.

12.3 External verification will be carried out by the approving body, the JBM. This will be a visit to the employer, normally by a team of two appointed by the JBM, lasting up to one day. It will include checking that due processes are in place, and inspecting candidates' evidence and assessors' records to confirm the standards and ensure that they accurately cross reference.

12.4 Employers shall ensure that their FLPs, Learning Plans and assessment records are available for inspection on request by the external verification panel. The external verifiers will need to see candidates' portfolios of evidence and will also wish to meet the candidates who are on or who have completed an FLP.

12.5 An FLP will normally be approved for a period of five years. Once approved, there will be a monitoring visit, normally after one year and further visits annually to check on progress, followed by a full external verification visit after 5 years. Thereafter, audit visits will be every 5 years.

13. Application for Approval of an Employer-Managed Further Learning Programme

- 13.1 Application for approval of an Employer-Managed Work-Based FLP should be made to the JBM Secretariat (jbm@ice.org.uk). Forms are available at www.jbm.org.uk. Employers will be required to give details of proposed SEs/assessors/internal verifiers, the mode and content of the learning, the assessment methodology, the level of support for their candidates, and any external links with universities and/or industry in the delivery of the Further Learning. To support the application, CVs of all SEs, Assessors, Internal Verifiers; an estimate of potential candidate numbers and a statement of how any short courses taken by the candidate meet the learning outcomes, should be included in the applications as Annexes.
- 13.2 If employers anticipate difficulties in any aspect of the assessment, for example providing their own assessors, managing the process or understanding assessment issues; they may wish to consider engaging with external agencies such as a local college or university or training provider, and exploring opportunities for liaison on their scheme. This may cover, for example, assistance with assessment of candidates or development of M-level learning modules tailored to the employer and candidates' needs. Where a Further Learning alliance between an employer and university is established, it may be possible for the JBM accreditation visit to the university to also include verification of those parts of an employer scheme with University input.
- 13.3 In marketing the scheme, the employer may refer to it being JBM approved on condition that the requirement for periodic audit and the possibility of withdrawal of approval is made clear.
- 13.4 It will be the responsibility of the employer to apply for a further period of approval beyond the initial period. It is recommended that employers indicate their intention to do so at least 12 months before the end of their current period of approval if they wish to avoid a lapse in JBM approval.

14. Supporting Reading Material

- 14.1 These Guidelines should be read in conjunction with the following publications as appropriate:-
- JBM Guidelines for MEng degree programmes
 - Self-Managed Work-Based Further Learning Programmes for Completion of the Education Base for a Chartered Engineer www.jbm.org.uk.
 - UK-SPEC – The Accreditation of Higher Education Programmes – <http://www.engc.org.uk/UKSPEC>.

APPENDIX 1 – SUMMARY OF ENHANCED LEARNING OUTCOMES EXPECTED OF MENG GRADUATES

The following enhanced learning outcomes expected of MEng graduates, beyond those of BEng graduates, have been derived from the UK-SPEC document “The Accreditation of Higher Education Programmes” (AHEP), published by EC^{UK} in 2004:

- The ability to integrate the knowledge and understanding across the whole degree programme.
- A greater degree of industrial involvement through project work.
- The ability to develop, monitor and update a plan of work to reflect a changing operating environment.
- The ability to monitor and adjust a personal programme of work and to learn independently.
- An understanding of team roles, and the ability to exercise leadership.
- The ability to learn new theories, concepts, methods, etc, in unfamiliar situations.

Specific Learning Outcomes include:

- Knowledge of new and emerging technologies.
- Knowledge of mathematical and computer models.
- An understanding of a wide range of concepts, including some outside engineering.
- Application of innovative design processes in unfamiliar situations.
- Extensive knowledge and understanding of management and business practices.
- The ability to evaluate and balance commercial and safety risks
- A thorough understanding of current engineering practice and its limitations.
- Extensive knowledge and understanding of a wide range of engineering materials and components.
- The application of engineering techniques in a range of commercial and industrial constraints.

APPENDIX 2 – SCHEDULE OF CEng FLP LEARNING OUTCOMES AND EXAMPLES OF LEARNING OPPORTUNITIES

	CEng FLP Learning Outcomes	Indicative Learning Opportunities & Comments
1	The ability to integrate the knowledge and understanding across the whole programme.	Gathered during the period of the FLP. Assessed at the end of the programme.
2	A greater degree of industrial involvement through project work.	A work-based structured inter-disciplinary project. This should be designed around a real work project/problem.
3	The ability to develop, monitor and update a plan of work to reflect a changing operating environment.	This could be a design project or a construction programme, accommodating real problems and variations as the work proceeds. This would involve planning, resourcing, costing, monitoring, re-planning and evaluating.
4	The ability to monitor and adjust a personal programme of work and to learn independently.	The first element could be based upon the candidates ability to manage themselves and meet appropriate company objectives for a defined element of work The second element could be demonstrated by the application of the CPD cycle as recommended by professional bodies – identifying personal development needs, planning to meet them, carrying out the plan, recording the outcomes and evaluating the success of the exercise.
5	An understanding of team roles, and the ability to exercise leadership.	Application of the theory of management & team working. This should be in the context of real and demonstrable responsibility.
6	The ability to learn new theories, concepts, methods, etc, in unfamiliar situations.	Knowledge & application of theory, method/work study, etc. Method statements. Risk assessment. This could be generated from the inter-disciplinary project.
7	Knowledge of new and emerging technologies.	Examples from the workplace. Study of professional & trade journals and the internet. Private study. Evidence of innovation in the workplace.
8	Knowledge of mathematical and computer models.	Use of IT to manage workplace tasks and problems, eg. design, estimating and project management software packages.
9	An understanding of a wide range of concepts, including some outside engineering.	SWOT and PESTLE analyses – strengths, weaknesses, opportunities and threats; and political, economic, social, technological, legal & environmental factors.
10	Application of innovative design processes in unfamiliar situations.	The successful exploitation of new ideas, and their application in the workplace.
11	Extensive knowledge and understanding of management and business practices.	Application of the theory of office/site administrative & management procedures. Business improvement models – eg. IIP, ISO, EFQM.
12	The ability to evaluate and balance commercial and safety risks.	This can link with 3. above. Design planning and site planning will involve financial and construction risk assessment. Budget preparation and control.

13	A thorough understanding of current engineering practice and its limitations.	Gathered during the period of the FLP. Assessed at the end of the programme. Study of professional & trade journals and the internet. Private study. Use of standards and codes of practice.
14	Extensive knowledge and understanding of a wide range of engineering materials and components.	Study of professional & trade journals and the internet. Private study. Candidates should keep a log of their experiences, and could prepare a report for assessment.
15	The application of engineering techniques in a range of commercial and industrial constraints.	Gathered during the period of the FLP. Assessed at the end of the programme. An introduction to: different forms of contract and measurement; different sorts of site – small/big, urban/rural; different forms of funding and payment.

No.	JBM Further Learning outcome (Note to employers: these are prescribed and are not amendable)	Learning Activity (exemplar details)	Estimated overall learning time (days)	Estimated overall learning period (months)	Candidates' evidence and assessment methods
3	The ability to develop, monitor and update a plan of work to reflect a changing operating environment.	<ul style="list-style-type: none"> • In-house programming course. • Programmes produced on site. • Programmes monitored, updated & evaluated on site. 	2 days 5 days 10 days	Autumn 2006 2006-2008 2006-2008	<ul style="list-style-type: none"> • End-of course exercise. • Approval by site manager of working programmes. • Approval by site manager of working programmes.
4	The ability to monitor and adjust a personal programme of work and to learn independently.	Candidates will create and maintain their own personal CPD programmes. These will include a Development Action Plan and a Personal Development Record.	15 days	2006-2009	Coaching sessions and Mentoring interviews will normally be on a quarterly basis. These will link with the employer staff appraisals.
5	An understanding of team roles and the ability to exercise leadership.	<ul style="list-style-type: none"> • In-house junior management course. • A section in the FLR on the application of teamworking and leadership theory in the workplace. 	4 days 15 days	2007 2008-2009	<ul style="list-style-type: none"> • Exercises during the course. • Interview based on the report.
6	The ability to learn new theories, concepts, methods, etc, in unfamiliar situations.	<ul style="list-style-type: none"> • Method study course. • Develop new site working methods. • Contribute to site risk assessments. 	3 days 10 days 5 days	2007 2006-2009 2006-2009	<ul style="list-style-type: none"> • Exercises during course. • Assessed by site manager. • Assessed by site manager.
7	Knowledge of new and emerging technologies.	<ul style="list-style-type: none"> • Ground Engineering course. • On-site learning of new techniques, eg. ground improvement, marine piling. 	2 days 10 days	2008 2007-2009	<ul style="list-style-type: none"> • Exercises during course. • Include a section in the FLR, to be assessed at interview.

No.	JBM Further Learning outcome (Note to employers: these are prescribed and are not amendable)	Learning Activity (exemplar details)	Estimated overall learning time (days)	Estimated overall learning period (months)	Candidates' evidence and assessment methods
8	Knowledge of mathematical and computer models.	<ul style="list-style-type: none"> • Setting-out course. • Application of setting-out knowledge in the workplace. • CAD users course. • Application of CAD skills in the workplace. 	3 days 15 days 2 days 10 days	2006 2006-2009 2007 2007-2008	<ul style="list-style-type: none"> • Exercises during course. • Assessed by site manager. • Exercises during course. • Assessed by site manager.
9	An understanding of a wide range of concepts, including some outside engineering.	Candidates will gain an understanding of the place of their project roles within the wider context of the company business plan. This will include eg. marketing, partnering, PFI, DBFO, environmental policy, etc.	5 days	2006-2009	Include a section in the FLR, to be assessed at interview.
10	Application of innovative design processes in unfamiliar situations.	<ul style="list-style-type: none"> • Temporary works design course. • Carry out alternative temp. works designs on site to solve new problems. 	2 days 10 days	2007 2008-2009	<ul style="list-style-type: none"> • Exercises during course. • Assessed by chief engineer.
11	Extensive knowledge and understanding of management and business practices.	Candidates will gain an understanding of the business improvement models used by the employer (eg. ISO 9001, Constructing Excellence) and the effect of these models on suppliers, subcontractors, community, environment, etc.	10 days	2006-2009	Include a section in the FLR, to be assessed at interview.
12	The ability to evaluate and balance commercial and safety risks.	<ul style="list-style-type: none"> • "Introduction to estimating" course. • Contribute to preparing monthly site budgets and valuations. 	2 days 10 days	2009 2008-2009	<ul style="list-style-type: none"> • Exercises during course. • Assessed by site QS.

No.	JBM Further Learning outcome (Note to employers: these are prescribed and are not amendable)	Risk Assessment course Learning Activity (exemplar details)	1 day Estimated overall learning time (days)	2008 Estimated overall learning period (months)	• Exercise during course. Candidates' evidence and assessment methods
13	A thorough understanding of current engineering practice and its limitations.	The role of the candidates during the period of the programme will provide the basis for this learning.	5 days	Sep 2006 – Sep 2009	Include a section in the FLR. Assessment will be through an interview based on the report.
14	Extensive knowledge and understanding of a wide range of engineering materials and components.	<ul style="list-style-type: none"> • Concrete technology course. • Experience as concrete engineer on site. • Experience as earthworks engineer on site. 	3 days 10 days 10 days	2006 2007-2009 2007-2009	<ul style="list-style-type: none"> • Exercises during course. • Assessed by site manager. • Assessed by site manager.
15	The application of engineering techniques in a range of commercial and industrial constraints.	The role of the candidates during the period of the programme will provide the basis for this learning.	5 days	Sep 2006 – Sep 2009	Include a section in the FLR. Assessment will be through an interview based on the report.

Total estimated planned contact learning time: 28 days (c 196 hours)

Total estimated planned overall learning time: 194 days (c 1358 hours)

This is consistent with the guidelines for Masters programmes of 1200 hours

APPENDIX 4 – SUGGESTED FORMAT FOR AN INDIVIDUAL CANDIDATE’S FURTHER LEARNING PLAN SUMMARY

Employer: **Candidate:** **Supervising Engineer:** **Assessors:** **Internal Verifier:**

Plan Overview

The JBM learning outcomes form the framework for this FLP. My role for the next three years will be site based, and therefore my learning activities are likely to include (but not be limited to) setting out, temporary works design, site programming, site supervision, measurement for record/payment purposes and materials reconciliation. This work-based learning will be supplemented by in-house and external courses. I will retain evidence of all this learning in a portfolio. The learning will be regularly assessed, and records of this assessment will also go into the portfolio.

The details of the FLP may be revised at any time to take account of the changing needs of the business.

Plan summary

No.	JBM Further Learning outcome	Learning Activity and Evidence Plan	Estimated overall learning period (months)	Assessment methods/other comments
1	The ability to integrate the knowledge and understanding across the whole course.	A Further Learning Report (FLR) at the end of the programme summarising this integration. This report will also include reference to other learning outcomes set out below.	Sep 2006 – Sep 2009	Interview based on the report.
2	A greater degree of industrial involvement through project work.	Include a section in the FLR.	Sep 2006 – Sep 2009	Interview based on the report.
3	The ability to develop, monitor and update a plan of work to reflect a changing operating environment.	<ul style="list-style-type: none"> • In-house programming course. • Programmes produced on site. • Programmes monitored, updated & evaluated on site. 	Autumn 2006 2006-2008 2006-2008	<ul style="list-style-type: none"> • End-of course exercise. • Approval by site manager. • Approval by site manager.

No.	JBM Further Learning outcome	Learning Activity and Evidence Plan	Estimated overall learning period (months)	Assessment methods/other comments
4	The ability to monitor and adjust a personal programme of work and to learn independently.	Create and maintain a personal CPD programme. This will include a Development Action Plan and a Personal Development Record. Updates shall be at least annually.	2006-2009	Coaching sessions and Mentoring interviews. These will link with the employer staff appraisals.
5	An understanding of team roles and the ability to exercise leadership.	<ul style="list-style-type: none"> • In-house junior management course. • A section in the FLR on the application of teamworking and leadership theory. 	2007 2008-2009	<ul style="list-style-type: none"> • Exercises during the course. • Interview based on the report.
etc				

No.	Further Learning outcome	Learning undertaken	Portfolio details	Name of Assessor	Assessor comments	Internal Verifier comments
4	The ability to monitor and adjust a personal programme of work and to learn independently.	CPD programme created and maintained.	See records on p. xx	ABC GHI	Good coaching and mentoring by colleagues.	Candidate and assessor records in order. The standards have been met.
5	An understanding of team roles and the ability to exercise leadership.	<ul style="list-style-type: none"> • In-house junior management course completed. • Teamworking and leadership skills confirmed. Now responsible for inducting new graduates. 	<p>See records on p. xx</p> <p>See records on p. xx</p>	<p>JKL</p> <p>ABC</p>	<ul style="list-style-type: none"> • Satisfactory exercises. • Excellent report and interview. Runner-up as company “junior manager of the year 2009”. 	Candidate and assessor records in order. The standards have been met.
Etc.						

APPENDIX 6 – GUIDELINES FOR THE ASSESSMENT OF FURTHER LEARNING PROGRAMMES

1. Introduction

Assessors must confirm that the educational base to bachelor level has been achieved before starting to develop a Further Learning plan with a candidate. The training that will be offered to employers will be based on the following summary of the assessor's responsibilities.

2. Develop Plans for Assessing Candidates

Assessors must be able to:

- Develop and agree Learning Plans with candidates.
- Check that candidates understand the assessment process involved, and the support available to them.
- Agree fair, safe, valid and reliable assessment methods.
- Plan for using different types of evidence.
- Identify how candidates' past achievement can contribute to the FLP.
- Agree when assessment will take place.
- Agree with candidates how their progress will be reviewed against the Learning Plan.
- Update and revise learning plans to take account of any change in circumstances.
- Advise candidates on the preparation of their portfolios.

3. Judge Evidence Against Criteria to Make Assessment Decisions

Assessors must be able to:

- Use agreed assessment methods (see third bullet point above) to assess candidates' evidence.
- Ensure that the evidence comes from candidates' own work.
- Make safe, fair, valid and reliable decisions about candidates' achievements against the requirements of the FLPs.
- Explain and resolve any inconsistencies in the candidates' evidence.
- Record the outcomes of the assessment so that they can be verified.
- Seek advice if there are any disagreements about the assessment.

4. Provide Feedback and Support to Candidates on Assessment Decisions

Assessors must be able to:

- Give candidates feedback at an appropriate time and place.
- Give candidates feedback in a constructive and encouraging way, which meets their needs and is appropriate to their level of confidence.
- Clearly explain their assessment decision on whether candidates' evidence of achievement is good enough.
- Give candidates advice, when they cannot prove their achievement, on how they can develop the necessary skills or provide more evidence.

- Encourage candidates to get advice following assessment decisions.
- Identify and agree the next steps in the assessment process, and how candidates will achieve these.

5. Contribute to the Verification Process

Assessors must be able to:

- Ensure that assessment records are accurate and up to date, and provide an audit trail of evidence.
- Contribute to standardisation arrangements (internal verification) agreed with the JBM approving body so that their assessment decisions are in line with others.
- Contribute to the agreed quality assurance processes.

6. Knowledge Requirements

Assessors need to know:

- How to identify and use different types of evidence when carrying out assessments.
- How to use evidence from candidates' prior achievements.
- How to develop and agree learning and assessment plans.
- How to involve the candidates in the planning and assessment processes.
- How to give candidates constructive feedback and help them develop their knowledge and ability.
- How to follow quality assurance procedures.
- How to ensure that the evidence is the candidates' own work.
- How to make valid and reliable assessments of candidates' achievements, based on their evidence.
- How to encourage candidates to ask questions and get advice.
- How to record, store and pass on assessment decisions within an agreed system.

Note: These assessor guidelines are based upon the National Standard Unit A1 "Assess candidates using a range of methods".