

# Initial Professional Development and the Professional Review Interview: Guidance to Mentors

Please note that these guidance notes should be read in conjunction with the Institution's full IPD regulations for progression to Technician/Chartered/Associate-Membership which may be found on the Institution's website: [www.istructe.org/membership](http://www.istructe.org/membership).

The mentor has a very important and crucial job to perform. It is vital that the candidate really is in a position to pass the Professional Review Interview. The Reviewers at the Interview will rely to a certain degree on the mentor's integrity and judgement in ensuring that only appropriately prepared candidates apply for the Review. The Institution would not wish candidates to make a submission if they have insufficient experience.

## 1. What is the standard route to Technician/Chartered/Associate-Membership?

There are three basic steps to becoming a Technician/Chartered/Associate-Member of the Institution. Candidates must satisfy the requirements listed below:

- Satisfy the academic requirements of the Institution
- Satisfy the Initial Professional Development (IPD)
- Pass the Professional Review (incorporating the Professional Review Interview and Chartered/Associate-Member examination)

As mentors you will only normally be required to assist and guide candidates in satisfying their Initial Professional Development requirements in preparation for the Professional Review Interview.

## 2. What exactly is IPD?

The Institution defines IPD as follows:

"IPD comprises the acquisition and development of the specialist knowledge and skills, and their practical application that are needed to practise as a Structural Engineer."

IPD is basically the period of time between satisfying the academic requirements of the Institution and being in a position to demonstrate compliance with the Institution's training requirements.

However, you should be aware that the IPD regulations do state under section 3.3 that "all relevant experience may be taken into account, including pre-graduate experience from 'sandwich', part-time or vacation work." You therefore may be approached by candidates who have yet to satisfy the minimum academic requirement.

**3. What are the major changes between the old training system and the new IPD regulations?**

The old training system was based on time. To progress to the Interview under the old regulations candidates were required to have either three years controlled training with appropriate records (Institution or ICE logbook) or alternatively five years compensating training. The new IPD system is no longer time-serving but is based on the candidate's ability to satisfy 13 Core Objectives (12 Core Objectives for Technician Membership).

These 12/13 Objectives are highlighted in the Institution's Initial Professional Development (IPD) regulations.

It is important to note that whilst the new IPD system is no longer time based, it would only be in exceptional circumstances that a candidate would be able to satisfy the Core Objectives with less than three or four years experience.

**4. What is a mentor?**

A mentor should preferably be a Chartered Structural Engineer (Fellow, Member, or Associate of the Institution of Structural Engineers) or a suitably experienced Associate-Member, or a person of equivalent standing.

A mentor will normally be an experienced engineer in a position to provide guidance, advice and training to candidates in your workplace.

**5. There are three ways of proceeding through the IPD regulations, as a Mentor will I be involved in all three routes?**

There are indeed three routes candidates can follow through the IPD regulations and these are listed below:

1. Individually Managed IPD
2. Accredited Training Scheme
3. Retrospectively Collated IPD

For full descriptions of the routes please refer to the IPD regulations.

As a mentor you will only be required to be involved in assisting candidates progressing through the Individually Managed Route

- The Accredited Training Scheme route is designed for candidates who are following an accredited training agreement with another recognised Institution i.e. ICE, HKIE. You will not be involved in this route unless you act as a Mentor for the other Institution.
- The Retrospectively Collated Route is designed for candidates who have no formal training records and as such a mentor will not have been involved in this route.

**6. How do candidates progress through the Individually Managed IPD and what are my role and responsibilities?**

Candidates following the Individually Managed IPD route take on responsibility for their own professional development. Such candidates should approach a mentor or mentors who will be able to guide them through the Institution's 12/13 Core Objectives. It is important to recognise that a candidate may have a number of mentors if they so wish – some mentors may have the relevant experience in Analysis and Design whilst another mentor may have detailed knowledge of Law or Health and Safety.

Mentors should meet with the candidate on a regular basis (at least every three months) and complete the IPD Quarterly Report Form and Progress Summary Record.

#### IPD Quarterly Report Form

The IPD Quarterly Report Form is split into five sections. The first three cover the three main groups of Core Objectives – Personal, Engineering, Management and Commercial. In each of these three sections the candidate will be required to list training or experience they have received in the preceding two or three months which contributes to specific Core Objectives. For example if the candidate attended a branch meeting of the Institution this would contribute to Core Objective 1.1 and consequently the candidate would note this down on the IPD Quarterly Report Form.

The IPD Quarterly Report Form is designed to simply list very brief details of the activities undertaken. If the candidate wishes to add further information they may use additional sheets, providing each sheet is signed by both the candidate and you. Alternatively, the candidate may prefer to write a report expanding on each of the bullet points and this report may be attached to the IPD Quarterly Report Form. Although the Institution does not wish candidates to write lengthy reports, it is advisable for the candidate to keep detailed records of their training and experience. These detailed records will help the candidate complete the IPD Final Report Forms, perhaps three or four years later.

The fourth section of the form is the candidate's Development Action Plan where they should list activities they plan to undertake in the next two/three month period to satisfy other Objectives.

You should complete the fifth section of the form and both the candidate and you should sign the form and each additional page.

#### Progress Summary Record

The Progress Summary Record shows the candidate's logical progression through the Core Objectives. At a glance you and the candidate can see where work needs to be done and at the Professional Review Interview the Reviewers can see how the candidate has progressed through each Objective.

For example, if we look at Core Objective 2.2 Analysis and Design we might expect a candidate to have an appreciation (standard A) of this upon graduation from university. However after a short period (three to six months) within a company the graduate may have a good knowledge of what design and analysis is all about (standard K). After a further period (12 – 18 months) the candidate

may have experience (standard E) in many of the elements of analysis and design and ultimately the candidate, after three or four years, may have an ability (standard B) to perform the objective without supervision and be competent to advise others.

In filling in the forms therefore, the candidate should simply note the date of their meetings with you and the level of attainment reached at that date.

## **7. What level of attainment is required before a candidate will satisfy the Core Objective?**

There are four different standards that apply to the Core Objectives:

- A A general appreciation of the subject is required, as well as an understanding of how the subject may affect, or integrate with other subjects.
- K A knowledge and understanding of the subject and its application is required.
- E The subject should be performed independently or under supervision
- B Perform the subject without supervision and be competent to advise others

It is important to note that candidates are not required to be experts in all of the Objectives. They are simply required to satisfy the minimum standard as specified in the Objective.

As far as attainment levels are concerned, the guidance notes under each Core Objective highlight some of the ways in which candidates may satisfy the Objective. However, the guidance notes are, as the name suggests, simply guidance notes! The notes are neither comprehensive nor exhaustive. Other activities may also contribute to a specific Objective and may be recorded. Further examples of activities which may contribute to the Core Objectives may be found in Appendix 1.

However, whilst the notes are simply designed to guide candidates and should not be used as a tick box exercise, it should be noted that if candidates have not undertaken a number of activities specified in the notes they may find it difficult to demonstrate that they have met the minimum requirement of the Objective.

## **8. What happens when the candidate has satisfied all 12/13 Objectives?**

Once the candidate and, more importantly, you are satisfied that all the Core Objectives have been completed, the candidate may consider applying for the Professional Review. Immediately before applying for the Review the candidate should complete the IPD Final Report Form for each of the 12/13 Core Objectives. Again, additional sheets may be used provided they are signed by the candidate and you.

The IPD Final Report should be the candidate's statement summarising how all of their experience and training has enabled them to satisfy the requirements of the Objective.

Candidates are strongly advised to read the Objective and include appropriate and relevant statements. For example, under Core Objective 1.1 (Institution), candidates are required to have knowledge of the Institution and involvement in Institution affairs. Candidates should not write a

two-page report on the history and development of the Institution. Reviewers do not want to read that the Institution was formed in 1908 or that it gained its Royal Charter in 1934. The Reviewers want to know how the candidate gained the knowledge and what activities have they have been involved in.

We do not produce example IPD Final Report Forms simply because this process is very subjective and the content of the forms can vary wildly between different candidates. We are conscious of the fact that the experiences of engineers can differ massively across the world and we want the IPD forms/portfolio to reflect the individual experiences of these applicants, and we do not wish to prescribe a particular way of completing them as being 'correct'. The fear is that some applicants would take the examples as being the definitive way to do things and this may result in a detrimental misrepresentation of their experience and abilities.

However, the general advice we would give is:

1. Make it personal – the Reviewers will not be interested in what your company does, they are only interested in what the candidate has done. Therefore, ensure that they state what they have personally undertaken and try to avoid generic statements about how your company operates;
2. Make it positive – don't sell yourself short. This is an Interview after all so focus on the strengths and don't highlight weaknesses – if there are limitations these will be picked up by the Reviewers during the Interview, there is no need to state them on the IPD Final Report Forms. Try to avoid statements such as 'I have limited/some experience' – the candidate either has experience or not. Also try and ensure that the correct words are applied to the relevant Objectives – e.g. if it's an 'ability' Objective, don't use 'experience' or 'knowledge' always use 'ability'. This may seem unnecessarily pedantic but it can remove some possible concerns the Reviewers may have;
3. Ensure they state how they have achieved the Core Objective standards – all too often candidates fall into the trap of simply describing the Objective or stating why it is important. This is not what the Reviewers will want to know. There is no benefit in describing the properties of various materials (for Objective 2.3) as the Reviewers will already know this; what they need to know is how the candidate has developed their understanding of materials and what practical experience they have. So be sure they detail how they have gained the knowledge of the Core Objective and in what ways they have used this knowledge to the standard expected of the Objective.

Mentors are required to write their comments on each of the IPD Final Report Forms, supporting the statements made by the candidate and confirming that they have satisfied the minimum requirements of the Objective.

## 9. What is the Institution's Professional Review Interview?

The Professional Review Interview is designed to test the candidate's ability and ensure that they have satisfied all 12/13 Core Objectives. The length of the Interview will vary according to the different routes and the length of time it takes for the Reviewers to determine whether the candidate has reached the required standard in each Objective. The Reviewers will ask candidates to make a presentation of no more than 15 minutes (no electronic aids will be allowed) and consequently an Interview is likely to last an average of 60 minutes.

Whilst the Reviewers will try to help the candidate by asking appropriate questions, it is important that candidates realise that the onus is on them to demonstrate that they have achieved the stated attainment levels for ALL 12/13 Core Objectives. In order to pass the Interview and proceed to the Chartered/Associate-Membership exam, or be elected to Technician Membership, candidates must pass all 12/13 Objectives. Failure in one Objective will constitute a failure in the Interview and candidates will be required to reapply the following year.

However, a candidate who fails up to three of the Core Objectives will only be required to be assessed on those Objectives. Those candidates who fail four or more Objectives will be assessed on all 12/13 Objectives.

## 10. Further queries?

If you have any further queries please contact the Institution's Professional Development Officer, Mr Allan Brereton. Contact details are below:

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# Appendix 1

Activities which may contribute to Core Objectives:

Please note that these relate most closely to the Chartered Member standards.

## **Core Objective 1.1 – Knowledge of the Institution and involvement in Institution affairs**

- Regular attendance at local branch meetings/seminars over a prolonged period of time
- Regular contact with members of the Branch Committee
- Knowledge of and adherence to the Institution Rules of Conduct
- Knowledge of the Institution's Council and Committee structure and the work of those Committees
- Regular use of the Institution's website, particularly the Members' Quarter
- Regular review of *The Structural Engineer* journal
- Knowledge of the Institution services including CPD courses, library
- The international dimension of the Institution
- Knowledge of other institutions and disciplines

## **Core Objective 1.2 – Ability to demonstrate effective communication and interpersonal skills**

Candidates should be able to demonstrate an ability in communication and interpersonal skills. This will be assessed in the Interview and by assessing the documentation submitted by candidates. It is important that candidates have an understanding of the principles of effective communication and can highlight how they have developed the abilities as stated in the Core Objective guidance note.

Candidates may choose to record involvement in, and their perception of the application of the following:

- In-house presentations
- Formal communication i.e. technical report writing
- European Computer Driving Licence
- Presentations to schools
- Team building exercises
- Institution competitions i.e. Young Structural Engineers' International Design Competition or other competitions supported by other institutions

**Core Objective 2.1 – Ability to produce viable structural solutions, within the scope of a design brief, taking account of structural stability, durability, aesthetics and cost.**

Candidates should demonstrate competence in conceiving approximated scheme solutions to assess the viability of alternative materials and forms of construction.

Candidates in producing designs should be able to demonstrate ability in the following:

- Load transfer and overall stability
- Function of frame system
- Progressive or disproportionate collapse
- Location and use of the structure
- Sustainability and environment
- Construction methods, materials and costs
- Foundations
- Assessment of the brief

**Core Objective 2.2 – Ability to carry out analysis and design of structural forms**

Candidates should be able to perform the following tasks without supervision and be confident to advise others:

- Basic beam and frame interaction
- Braced and unbraced frame analysis
- Buildability and construction techniques
- Movement joints
- The software packages involved in the analysis / design process
- Subframe analysis
- Structural planning
- Soil / Structure interaction
- Various types of static and dynamic loading

### **Core Objective 2.3 – Ability to specify and co-ordinate the use of materials**

Candidates should have ability to specify and co-ordinate the use of the primary construction materials in structures. Mentors should provide candidates with an opportunity to develop knowledge of and experience in the use of steel, concrete, masonry and timber.

Whilst the Institution recognises that candidates may specialise in one or two of the materials they should nonetheless have knowledge of the behaviour, availability, cost and manufacture of the four primary materials.

Steel:

Candidates may choose to develop knowledge of:

- Grades and types of steel and other metals including their physical properties and their limitations. Their use as primary or secondary materials (i.e. beams or rebar fixings). Protection requirements etc.

Concrete:

Candidates may choose to develop knowledge of:

- Grades and types of concrete - its use, durability and properties including thermal shrinkage etc

Masonry:

Candidates may choose to develop knowledge of:

- Grades and types of masonry – its use, durability and properties including thermal shrinkage etc.

Timber:

Candidates may choose to develop knowledge of:

- Grades and types of timber

Other materials including glass, plastics etc should also be considered.

### **Core Objective 2.4 – Knowledge of relevant environmental and sustainability issues and legislation**

Candidates must promote the message of sustainability through their words and actions. Candidates may choose to develop knowledge of:

- Protection of vegetation and wildlife at the planning, design and construction stages
- Environmental legislation

- Methane / Radon gas
- Sustainability and knowledge of the Institution's Panel on this matter
- Brownfield sites
- Environmental Impact Assessments
- Contaminated land
- Recycling construction

### **Core Objective 2.5 – Experience in construction techniques**

Candidates are required to develop experience in construction techniques. The Core Objectives offer guidance on how candidates may achieve this experience. As mentors you should, where possible, assist and guide candidates to develop this experience.

Candidates should be encouraged to gain knowledge and experience in some or all of the areas listed below:

- Demolition
- Setting out
- Materials testing
- Temporary works
- Substructure construction
- Superstructure construction
- Construction programming and sequencing
- Health and safety

### **Core Objective 3.1 – Experience in management skills for programming and control**

Candidates progressing to Chartered Membership are required to have experience of management and have developed leadership skills through the programming and control of all the resources within a construction project.

This experience may be gained through:

- Attendance at project meetings (design and contract)

- The development of project management skills including the definition and organisation of the project and its constituent phases.
- The management of people and the interface with stakeholders within the project
- The development of time management and delegation skills
- Partnering

### **Core Objective 3.2 – Appreciation of the law and statutory legislation**

Mentors should note that candidates are required to develop an appreciation of the law of the construction industry relevant to the candidate's location. Obviously this will differ throughout the world. Nevertheless candidates should be encouraged to develop an appreciation of:

- Statutory legislation / negligence / liability laws
- Contract law
- Health and safety legislation
- Insurance matters
- Adjudication process
- Arbitration process
- The role of the expert witness

### **Core Objective 3.3 – Experience in Health and Safety requirements and legislation**

Mentors should ensure that candidates develop their experience in Health and Safety issues including:

- Health and safety legislation
- Hazards and risk assessments
- Health and safety standards and reports of safety i.e. SCOSS reports
- Insurance
- Risk management

### **Core Objective 3.4 – Appreciation of commercial and financial constraints**

Mentors should ensure that candidates have an appreciation of commercial issues including

- Costs and the impact of national and international affairs on the demand and supply of raw materials, labour and manufacturing processes
- Value engineering and whole life project costing
- Bill of quantities
- Competitive tendering

### **Core Objective 3.5– Knowledge of procurement routes and forms of contract**

Knowledge of different forms of contract relative to the candidate's field of work such as:

- Private Finance Initiative (PFI)
- Public Private Partnership (PPP)
- Design and build contracts
- Partnering
- Management contracts
- Joint Contracts Tribunal
- Institution of Civil Engineers forms of contract
- Association of Consulting Engineers conditions of engagement
- Nominated sub-contracts

### **Core Objective 3.6 – Knowledge of quality systems**

Candidates should develop knowledge of quality systems including:

- Total Quality Management
- Quality Management Systems i.e. BS ISO 9001 ; 2000
- Project Quality Plans
- Environmental Management Systems (EMS)