

# GUIDANCE NOTES

## IHE PROFESSIONAL DIPLOMA

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Recognising your specialist expertise and competence.

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Guidance notes for:  
**IHE** Professional Diploma



## About this booklet

This set of guidance notes is your first step in gaining an IHE Professional Diploma in a specialist area of highway engineering. It provides you with information and guidance, to ensure the relevant paperwork is completed to the required standard as quickly and easily as possible. Please read this booklet in conjunction with the Professional Diploma application form as the two are designed to go hand in hand.

## Before you begin

IHE Professional Diplomas are one of the cornerstones of our exciting new virtual Highway Engineering Academy. The IHE is alarmed by the skills shortage within the highways sector and we're taking action to address it by establishing a one-stop-shop to provide highway engineers with a unique professional development facility. The aim of the Highway Engineering Academy is to train a dedicated workforce with the specialist skills and expertise the industry needs to build the UK's road network. The Government's National Infrastructure Plan for Skills published in September 2015 highlighted the scale of the UK's projected skills gap in engineering, according to the report, the total projected expenditure in roads from 2015/16 to 2020/21 is forecast at £30 billion. With investment rising to nearly £6 billion per annum by the end of the decade, this equates to a workforce of over 60,000 people.

At Diploma level this qualification is only suitable for engineers working with significant levels of responsibility. They may be budget holders in their respective disciplines, e.g. as site managers, planners, estimators, buyers (with responsibility and broad autonomy for managing projects and people) and dealing with complex problems that arise.

### How do I achieve a Professional Diploma?

**Course Route** – A structured training programme is available for all the Professional Diplomas offered by the IHE. Through a rigorous academic training course, delivered by industry professionals, you will learn the skills and information required for achievement of an IHE Professional Diploma. You will need to attend the dedicated Professional Diploma training course, more detail of which can be found on the IHE website at [www.theihe.org](http://www.theihe.org) or in the Highway Engineering Academy brochure. All courses are delivered throughout the year in the clean, contemporary setting of our Birmingham office space and meeting rooms. This centrally located venue in Birmingham Brindleyplace gives excellent connectivity across the UK. Courses are also run at our main London office, regionally and as an in-house option.

You will receive a Certificate of Attendance with CPD just for attending the course. If you wish to apply for the Professional Diploma you will need to successfully complete all assignments and assessments.

**Knowledge Based Route** – To achieve the Professional Diploma in your chosen discipline you will need to demonstrate you have sufficient skills, training and experience through submitting a Professional Diploma Assessment Portfolio and application form.

### Professional Registration – Incorporated Engineer

IHE Professional Diplomas can form the basis for Engineering Council registration at Incorporated Engineer (IEng) level. Incorporated Engineers are required to have an academic base equivalent to a Bachelors level degree in Civil Engineering and the IHE Professional Diploma can be used to achieve this.

If you successfully complete and pass your Professional Diploma assignments to be awarded the Professional Diploma, you have the option to submit these to us as evidence of learning at IEng level. You will need to cross-reference your assignments to Engineering Council IEng Learning Outcomes and submit them to us for consideration in one of two ways, depending on your existing academic qualifications:

1. **Further Learning Report** If you already hold an approved HNC/ HND or an unaccredited Bachelors degree, your Professional Diploma assignments will be considered as evidence of Further Learning at IEng level as a Further Learning Report. If the IHE Academic Standards Panel are satisfied your assignments demonstrate evidence of Further Learning to 'top up' your existing qualifications to IEng level, their approval will allow you make an IEng application as if you were applying through the Standard Route to IEng. More information can be found in the IHE IEng guidance booklet available in the Members area or the Highway Engineering Academy website.
2. **Personalised Report Option** If you hold qualifications unrelated to engineering, or no qualifications at all, your Professional Diploma assignments will be considered as evidence of learning IEng level as a Personalised Report. If the IHE Academic Standards Panel are satisfied your assignments demonstrate evidence of learning at IEng level, their approval will allow you to make an IEng application through the Individual Route, Personalised Report Option to IEng. More information can be found in the IHE IEng guidance booklet available in the Members area or the Highway Engineering Academy website.

After you have successfully completed one of the two routes above and have received IHE Academic Standards Panel approval, to gain Engineering Council registration, engineers and technicians prove their competence and commitment in a Professional Review of their portfolio submission to the IHE. This is made up of a separate IEng Professional Review portfolio and a Professional Review Interview. Personalised Report Option applicants will also have a second interview on their Technical Report. More information can be found in the IHE IEng guidance booklet available in the Members area or the Highway Engineering Academy website.

In order to obtain IEng registration you will need to be an existing IHE member. Please refer to our website at [www.theihe.org/membership](http://www.theihe.org/membership) if you need to apply for IHE membership.

## Completing the application form

To keep your application as clear as possible, we would request the following:

- If completing this form by hand, please write in BLOCK CAPITALS and in black ink.
- Please complete only the relevant fields – We have included guidance as to which sections should be left blank if they are not relevant.
- You should aim to complete this form with as much detail as possible. This will reduce the instances where we need to ask you for more information at a later date.
- Remember to include any required documentation with your application when you see this symbol – Please tick the relevant box on the checklist at the back of the application form.



Please post your completed application form, along with your submission, to:

**Membership, Institute of Highway Engineers, Floor 32–34, 286 Euston Road, London, NW1 3DP**

## And finally

We hope you find the pathway to recognising your specialist competence through an IHE Professional Diploma a simple process. The Institute of Highway Engineers is committed to helping you achieve the career benefits that professional development can bring. Please contact us on: 0203 551 5681 or email us at [professionalreviews@theihe.org](mailto:professionalreviews@theihe.org) if we can provide any assistance or guidance at any stage of your application.

## Section A

In this section we give some general guidance and background to making your Professional Diploma submission with the IHE.

### Getting started

Getting the right help and support is crucial to ensuring you are successful in achieving your Professional Diploma.

#### Help and support – IHE Courses

All the Professional Diplomas offered by the IHE have an accompanying course available. Courses are held throughout the country and normally require attendance over 4–5 days and offer professional, high quality tuition on each module. On completion of the course you will receive a Certificate of Attendance (meriting 30 hours CPD). Guided tuition is also available to assist with the completion of each assessment.

All of our Professional Diplomas (and Professional Certificates) can be offered in-house at your company premises or any other convenient location.

For more information on the IHE Professional Diploma courses please see our website or the IHE Highway Engineering Academy brochure.

#### Help and support – Mentors

You are responsible for your own development and pathway to producing your Professional Diploma submission, but support from a colleague or mentor enables you to try out ideas and keep a focus on objectives. Good mentors will try to ensure that the engineers they work with gain confidence and independence as a result of their one-to-one relationship and are empowered to take full and effective responsibility for themselves.

#### Creating your folder

All submissions must be presented in a single ring binder or lever arch folder. You should use file dividers to enable us to easily identify the relevant parts of your evidence folder and cross reference these with the section headings in the Professional Diploma application form.

The coversheet provided in Section 1 of the application form must be affixed to the front of your folder.

*Please note: Submissions presented in any other style of folder or binding, or without the coversheet affixed will be returned to you.*

## Section B

In this section we will guide you through completing the IHE Professional Diploma application form. The application form pulls together your personal details, aims to assess some of your skills and knowledge, as well as providing a checklist for your additional documents.

Guidance on all sections of the application form is detailed below.

### 1. The coversheet

Please complete the coversheet in Section 1 at the front of the application form. This must be affixed to the front of your folder.

All submissions must be presented in a single ring binder or lever arch folder. You should use file dividers to enable us to easily identify the relevant parts of your evidence folder. These should cross reference with the relevant sections of this form.

*Please note: Submissions presented in any other style of folder or binding, or without the coversheet attached will be returned to you.*

### 2. Your details

Please complete all fields in this section.

### 3. Current employment details

Please complete all fields in this section.

### 4. Professional Diploma specialism

Please tick which IHE Professional Diploma you are applying for.

### 5. Your CV

We require an up-to-date copy of your CV covering your employment, academic and training history. This CV should be no more than two pages in length.

### 6. Higher and further education

Please complete this section in chronological order as per the instructions on the application form.

### 7. Career history

Please complete this section in chronological order as per the instructions on the application form.

### 8. Your current job

We require a copy of your current Job Description to be attached with your application. Self employed applicants should produce a one page document describing your direct clients.

### 9. Mapping your organisation

You should supply the IHE with a clear organisation chart that identifies the structure of your organisation. This organigram should be of a hierarchical design and you should clearly highlight our own position on it. Self employed applicants do not need to complete this section.

## 10. Continuing Professional Development

Continuing Professional Development is the systematic maintaining, improving and broadening of your knowledge and skills and the development of personal qualities necessary for the execution of professional duties throughout your working life. Most employers require you to keep a personal CPD record and you can submit this as evidence in your folder. If your employer does not require this, a blank CPD record form can be downloaded from the members area of our website at <https://theihe.site-ym.com/login.aspx> (log in required)

The IHE recommends you record your CPD using the Engineering Council Mycareerpath tool. If you use this, please export your CPD record and print it out. It can then be included in your evidence folder.

Please ensure you submit evidence of Continuing Professional Development and demonstrate how you intend to meet your obligations to CPD in the future by submitting a forward plan.

More information on CPD can be found in the members area of our website at <https://theihe.site-ym.com/login.aspx> (log in required)

*This should be essential reading if you intend to make an IEng submission alongside your Professional Diploma portfolio.*

## 11. Assessment Portfolio

Competence is the ability to carry out a task to the required standards. To achieve this, you will need to demonstrate that you have the level of knowledge and skills required to achieve the relevant Professional Diploma by completing assignments for the required modules and presenting these in an Assessment Portfolio. Competence is developed by a combination of formal and informal learning, training and experience.

For each Professional Diploma you are required to submit a portfolio of evidence demonstrating your knowledge and experience across the identified competencies in each of the modules. Each module is designed to provide you with an opportunity to demonstrate the competences as detailed in the grid we have provided in this booklet. Please read the statements and guidance carefully and bear this in mind as you write your answer and draw together your evidence.

Your Professional Diploma Assessment Portfolio will, for each module, contain a written narrative of your recent work in approximately 2500–3000 words to cover the competencies listed in the module grid. To support and underpin this text you should cross reference where required, with sufficient evidence using at least two schemes from your work experience to show that you have met the required competencies. No more than half a dozen small evidential documents per module are required and excess evidence is likely to be rejected.

Your Assessment Portfolio will need to contain:

1. A written text for each of the core modules in turn. To support your written answers, you will need to select and cross reference to the specific evidence documents you have included.
2. A written text for each of the optional modules required. To support your written answers, you will need to select and cross reference to the specific evidence documents you have included.

The required number of core and optional modules is specific to each Professional Diploma. Please read each Professional Diploma grid carefully to ensure you have answered the required number of modules.

Describe clearly the schemes, projects or tasks and your personal input and responsibilities. Indicate the size and complexity of policy aspects of the schemes and your experience to date, commenting particularly on recent activities where you have exercised greater responsibility. Explain what you did and why by reference to national and local design principles, policy and good practice. We want to know what you did and why – therefore use “I” not “we”. Where you are required to demonstrate your knowledge, at Diploma level discussions, questioning or other knowledge evidence should show conceptual understanding that enables you to devise and sustain arguments and/or to solve problems, using ideas and techniques, some of which may be at the forefront of a discipline and from a range of sources.

### Assessment criteria

Your assignments for each module will be marked against the following assessment criteria:

0 – No evidence of knowledge, understanding, awareness and ability.

1 – Some but weak evidence of knowledge, understanding, awareness and ability.

2 – Some evidence of knowledge, understanding, awareness and ability but not to the required standard.

3 – Practice standard of evidence of knowledge, understanding, awareness and ability.

4 – Strong and above practice standard evidence of knowledge, understanding, awareness and ability

To gain the Professional Diploma you must obtain a minimum mark of two or above for each core module. In addition, you must also achieve an overall score of greater than 70% across the required number of modules to successfully achieve the Professional Diploma

## Professional Diploma in Asset Management

To obtain the Professional Diploma in Asset Management, you must successfully demonstrate your competence within all **TWELVE** of the following twelve modules.

	Module	Competency Content
1. (Core)	<b>Highway law, ownership and legal obligations.</b>	Candidates will explain in detail how they have taken account of the legal requirements relating to Asset Management as part of their day to day work as an asset manager.
2. (Core)	<b>The Risk Based approach.</b>	Candidates will explain in detail how a Local Authority would use the guidance in the Code of Practice to manage its risks and the value of an effective performance management system.
3. (Core)	<b>Governance &amp; strategy.</b>	Candidates will explain in detail how LHAs may use their asset management policy and strategy to communicate and direct the implementation of asset management activities within the Authority. In addition, candidates will provide evidence of being able to select relevant policies and strategies developed by LHAs.
4. (Core)	<b>Information and data.</b>	Candidates will explain in detail appropriate practical knowledge of what data they use in relation to Asset Management. They will explain how measures utilised by the business ensure that the data is consistent and high quality. In addition, candidates will show how data is managed and analysed and how the outputs could influence business decisions.

	<b>Module</b>	<b>Competency Content</b>
<b>5. (Core)</b>	<b>Inspections and national KPIs.</b>	<p>Candidates will explain in detail the different highway infrastructure inspection / survey types (e.g. SCANNER, SCRIM, Section 58, NRSWA etc.) that are used and understand how the indicative cost, use, benefits and innovation impact on the selection of each survey type.</p> <p>Candidates will explain in detail an appropriate practical knowledge of what inspection/ survey types are used within their own organisation and complete a brief analysis of each.</p>
<b>6. (Core)</b>	<b>Network prioritisation, risk management and resilience.</b>	Candidates will explain in detail the different network hierarchies and the difference between the winter service routes and the resilient network.
<b>7. (Core)</b>	<b>Funding and lifecycle planning.</b>	Candidates will explain in detail the production of a LCP and be able to explain the results and provide recommendations regarding funding levels or investment.
<b>8. (Core)</b>	<b>Customers and communications.</b>	Candidates will explain in detail the production of an Asset Management communication strategy/plan and critically analyse whether plans meet their objectives and be able to suggest areas for improvement.
<b>9. (Core)</b>	<b>Sustainability and asset preservation.</b>	Candidates will explain in detail where sustainability was one of the key considerations in how a maintenance project or service was delivered. This will include key issues including relevant guidance/ legislation, how these issues can be overcome and how lessons learnt may be applied to the delivery of future projects/services.
<b>10. (Core)</b>	<b>Performance monitoring.</b>	Candidates will explain in detail a Highway Authorities performance management framework. Candidates will demonstrate an appropriate knowledge of the difference between strategic, tactical and operational performance monitors and discuss how each of the selected monitors links to and assist in achieving the authorities' corporate objectives.
<b>11. (Core)</b>	<b>Operational performance and procurement.</b>	Candidates will explain in detail the key steps a Local Authority will undertake when procuring a highway services contract including the key decisions they must make, the possible options and the benefits and drawbacks of each.
<b>12. (Core)</b>	<b>New and Emerging Technology.</b>	Candidates will explain in detail how to select new or emerging technology and how this will influence a brief or business case for additional funding to deal with the impact of new technology on the network or, for the organisation to purchase and utilise the technology. Candidates will highlight the benefits and challenges, costs, resources and value for money.



## Professional Diploma in Cycling Infrastructure – Planning & Design

To obtain the Professional Diploma in Cycling Infrastructure, you must successfully demonstrate your competence within at least **EIGHT** of the following fourteen modules. This is made up of **FIVE** core modules and **THREE** of the nine optional modules.

	Module	Competency Content
1. (Core)	<b>Cycling Policy – understanding, formulation and implementation</b>	Candidates will explain in detail national and local cycling policies and design guides. In addition, candidates will provide evidence to show how they have contributed to the formulation of cycling policy, developed programmes and projects designed to meet policy objectives and outcomes and identified new opportunities by drawing on industry best practice.
2. (Core)	<b>Cycle Network / Route Planning</b>	Candidates will explain in detail the development of network planning for cyclists across an area or route-based initiatives. In addition, candidates will provide evidence demonstrating route continuity, consistency of provision and improving gaps in provision.
3. (Core)	<b>Cyclists at Intersections &amp; Traffic Signals</b>	Candidates will explain in detail provision for cyclists at junctions including those with signal control, including methods of control and design at signal-controlled junctions, road crossings and use of intelligent transport systems.
4. (Core)	<b>Cyclists at Roundabouts</b>	Candidates will explain in detail key factors and provision for cyclists at different roundabout types and an understanding of the interaction with other modes.
5. (Core)	<b>Cycling on Links – Cycle Lanes</b>	Candidates will explain in detail design for cyclists on links, different cycle lane types and the delivery of successful cycle lane schemes.  Candidates will explain in detail the maintenance regimes of cycle schemes and impact on use.
6.	<b>Cycle Safety</b>	Candidates will explain in detail cycle safety initiatives and the application of preventative measures.  Candidates will explain in detail appropriate assessment techniques and experience of the implementation of cycle safety measures.
7.	<b>Monitoring &amp; Evaluation of Cycling Projects</b>	Candidates will explain in detail evaluation techniques, research projects and how these have influenced policy or treatments. In addition, candidates will provide evidence of effective cycle scheme monitoring and the reporting of lessons learnt.
8.	<b>Cycle Parking</b>	Candidates will explain in detail effective parking measures and how these influence usage.  Candidates will explain in detail how parking integrates with public transport and key trip generators (workplaces, schools, shops).
9.	<b>Shared Space &amp; Cyclists</b>	Candidates will explain in detail the designing for cyclists within shared space environments and the interaction with other modes.

10.	<b>Cycling &amp; Public Transport</b>	Candidates will explain in detail how cycling can be integrated into public transport networks in terms of design, planning and multi-modal trips. Parking at interchanges, access to public transport, cycle hire schemes.
11.	<b>Modal Shift &amp; user behaviour</b>	Candidates will explain in detail of how to affect modal shift, increasing cycle numbers through policy or infrastructure. Influencing user behaviour and stakeholder management to effect change.
12.	<b>Route Planning for Cyclists</b>	Candidates will explain in detail implementing successful way-finding, branding or signing schemes.
13.	<b>Complementary Measures</b>	Candidates will explain in detail the use of complementary measures through the Travel Planning process. In addition, candidates will provide evidence of training initiatives, financial schemes, cycle events, cycle repair and maintenance schemes.
14.	<b>Traffic Free Routes</b>	Candidates will explain in detail implementing cycle schemes on traffic free routes.  Candidates will explain in detail an understanding of minimum service requirements, design guides, interaction with other modes.

## Professional Diploma in Development Management

To obtain the Professional Diploma in Development Management, you must successfully demonstrate your competence within at least **EIGHT** of the following thirteen modules. This is made up of **SIX** core modules and **TWO** of the seven optional modules.

	<b>Module</b>	<b>Competency Content</b>
<b>1. (Core)</b>	<b>Planning process.</b>	Candidates will explain in detail the law and policy framework governing planning in England.
<b>2. (Core)</b>	<b>Planning procedure.</b>	Candidates will explain in detail the planning process including local development frameworks, LTPs, adoption of highways, section 38 Agreements, TROs, planning obligations (106 agreements), Manual for Streets.
<b>3. (Core)</b>	<b>The appeals process.</b>	Candidates will explain in detail the grounds for refusal and the appeals process.
<b>4. (Core)</b>	<b>Policy</b>	Candidates will explain in detail the issues to be considered when dealing with a development application, the tools available and their use and limitations, including policy frameworks (PPSs and PPGs), Local Development Frameworks and LTPs.
<b>5. (Core)</b>	<b>Highway design, construction and management issues.</b>	Candidates will explain in detail the relevant technical design standards and advice and be able to understand the reports, standards and know how to commission and use reports. These include, vehicle access (visibility splays), the role and scope of safety assessments and audits in DC including an understanding of vulnerable road user and mobility reviews and audits in DC.  Candidates will explain in detail mobility access, maintainability, buildability, drainage and network capacity models and their limitations.

	<b>Module</b>	<b>Competency Content</b>
<b>6. (Core)</b>	<b>Network capacity.</b>	Candidates will explain in detail technical models and their limitations. Candidates will explain in detail junction analysis, junction design (PICADY), roundabouts (ARCADY), traffic signals (OSCADY, LINSIG, TRANSYT) and know how to validate the data provided and how to interpret and apply the results.
<b>7.</b>	<b>Transport assessments.</b>	Candidates will explain in detail how to evaluate an assessment. Candidates will explain in detail trip generation and distribution (TRICS) and travel demand assessment.
<b>8.</b>	<b>Ownership.</b>	Candidates will explain in detail what to check in order to protect the interests of the highway and where they would obtain this information.
<b>9.</b>	<b>Design and master planning.</b>	Candidates will explain in detail local regional and national guidance and know how to translate this guidance into a layout which is appropriate to the local context and is fit for purpose.  Candidates will explain in detail what constitutes quality public realm and will have a detailed knowledge of design guides and safety by design for housing layouts.
<b>10.</b>	<b>Sustainability.</b>	Candidates will explain in detail sustainability policies and know how to assess proposals for all forms of travel.  Candidates will explain in detail the requirements for parking provision and how to use the walking isochrome.
<b>11.</b>	<b>Travel plans.</b>	Candidates will explain in detail the aims and legality of Travel Plans and the policy context of these.  Candidates will explain in detail routing agreements, appropriate sources of guidance and enforcement practices.
<b>12.</b>	<b>Responding to consultations and preparing conditions.</b>	Candidates will explain in detail the roles of the conditions, the types of conditions and the reason behind the recommendation and the need to formulate these carefully.
<b>13.</b>	<b>Post-planning consent issues.</b>	Candidates will explain in detail how to prepare S38 and S278 Agreements, and be aware of NRSWA, road possession, programming etc

## Professional Diploma in Highway Maintenance

To obtain the Professional Diploma in Highway Maintenance, you must successfully demonstrate your competence within at least **NINE** of the following fourteen modules. This is made up of **THREE** core modules and **SIX** of the eleven optional modules.

	<b>Module</b>	<b>Competency Content</b>
<b>1. (Core)</b>	<b>Asset Management systems &amp; principles.</b>	<p>Candidates will explain in detail the principles behind managing highway assets including 'worst first' and 'whole-life cost' scenarios.</p> <p>Candidates will explain in detail the practical examples of planning, managing and delivering programmes of work linked to asset management principles.</p>
<b>2. (Core)</b>	<b>Health &amp; Safety regulations and responsibilities including Temporary Traffic Management considerations.</b>	Candidates will explain in detail the requirements of Safety at Street Works and Road Works – Code of Practice together with knowledge of responsibilities, risk assessments and safe systems of work relating to highway maintenance activities.
<b>3. (Core)</b>	<b>Highway maintenance specifications and Codes of Practice.</b>	Candidates will explain in detail a range of relevant specifications for highway works, maintenance and serviceability, including relevant highway maintenance specifications, safety standards and codes of practice.
<b>4.</b>	<b>Structural maintenance materials, techniques and considerations.</b>	<p>Candidates will explain in detail the construction materials, depths and thicknesses involved in structural maintenance or reconstruction of both rigid, composite and flexible roads and footways.</p> <p>Candidates will explain in detail the substrate characteristics, traffic and CBR relationship in relation to materials chosen.</p>
<b>5.</b>	<b>Highway law, legal duties and powers relating to highway maintenance and management.</b>	<p>Candidates will explain in detail the definition of highways, highway adoption and dedication.</p> <p>Candidates will explain in detail the duties and enforcement powers of highway authorities set out within the Highways Act 1980 including Section 41 and defence under Section 58. Supervision of others working on the highway under New Roads and Street Works Act 1991.</p>
<b>6.</b>	<b>Highway inspections – Types and reasons for conducting inspections of the highway.</b>	<p>Candidates will explain in detail specific inspections together with an understanding of and the reasons and techniques employed in highway inspections, surveys and frequencies.</p> <p>Candidates will explain in detail accurate record keeping and legal process.</p>

	<b>Module</b>	<b>Competency Content</b>
7.	<b>Reactive and planned maintenance techniques.</b>	<p>Candidates will explain in detail the relationship between reactive and planned maintenance.</p> <p>Candidates will explain in detail costings, performance life, workmanship requirements and end user perception along with an appreciation of emerging technologies and developments in the highway maintenance sector.</p> <p>Candidates will explain in detail the safety implications, environmental impacts and sustainability relating to maintenance techniques.</p>
8.	<b>Bituminous materials use and considerations.</b>	<p>Candidates will explain in detail bituminous surfacing materials, thicknesses and characteristics of different surface course materials used in both roads and footways.</p> <p>Candidates will explain in detail the relative costs, durability and safety characteristics of surface course materials.</p>
9.	<b>Surface dressing, surfacing and slurry sealing design and application.</b>	<p>Candidates will explain in detail the use, application and limitation of thin surfacing, surface dressing and slurry seal systems, including appreciation of the factors contributing to design, use and service life of surface treatment systems.</p>
10.	<b>Failure identification and remedial treatments.</b>	<p>Candidates will explain in detail the types and reasons for a range of highway failure characteristics, including the ability to identify causes and corrective actions to remedy defects and apply preventative measures.</p>
11.	<b>Maintenance contract management, quality surveying and administration.</b>	<p>Candidates will explain in detail the components of contracts, specification, BoQs and methods of measurement including principles of estimating and costing of works.</p>
12.	<b>Drainage, flood risk and environmental and landscape maintenance.</b>	<p>Candidates will explain in detail highway drainage principles, responsibilities for highway drainage and factors relating to flood risk.</p> <p>Candidates will explain in detail SuDS and environmental maintenance regimes including forestry, gullies, sweeping, grass etc.</p>
13.	<b>Sustainable and innovative highway maintenance techniques.</b>	<p>Candidates will explain in detail a range of innovative highway repair and maintenance techniques, providing evidence which may include trials and evaluation of repairs, testing, cost reduction strategies and recycling initiatives applied to highway maintenance.</p>
14.	<b>Soil and materials sampling, performance and testing practice.</b>	<p>Candidates will explain in detail a range of testing principles and techniques used across various highway maintenance materials.</p> <p>Candidates will explain in detail factors relating to the performance of different soils and substrates for highway construction.</p>

## Professional Diploma in Temporary Traffic Management

To obtain the Professional Diploma in Temporary Traffic Management, you must successfully demonstrate your competence within at all **FIFTEEN** of the following fifteen modules.

	<b>Module</b>	<b>Competency Content that is required to be demonstrated.</b>
<b>1. (Core)</b>	<b>General legislation.</b>	<p>Candidates will explain in detail Health and Safety law as it applies to the Engineer / Designer including:</p> <ul style="list-style-type: none"> <li>• Knowledge of the requirements of CDM 2015.</li> <li>• Knowledge of the statutory roles within CDM 2015.</li> </ul> <p>Candidates will explain in detail practical examples of design and planning for safety, managing and controlling risk and coordination or communication of risk at the design stage.</p>
<b>2. (Core)</b>	<b>Highway management legislation.</b>	<p>Candidates will explain in detail the requirements of the legislation provided in connection with permitting and coordination of Temporary Traffic Management Systems.</p> <p>Candidates will explain in detail practical examples where they have coordinated the implementation of and obtained approval for Temporary Traffic Management Systems.</p> <p>Candidates will explain in detail how to assess the requirements of the relevant legislation and the requirements of the parties involved in highway permitting and coordination.</p>
<b>3. (Core)</b>	<b>Regulation of highways.</b>	<p>Candidates will explain in detail the requirements of the relevant legislation in connection with the regulation of traffic.</p> <p>Candidates will explain in detail practical examples they have handled existing highway signs or regulation and experience of implementing temporary regulation so as to allow the implementation and operation of effective Temporary Traffic Management Systems.</p>
<b>4. (Core)</b>	<b>Existing highway engineering.</b>	<p>Candidates will explain in detail the existing highway design alignment features and engineering measures.</p> <p>Candidates will explain in detail practical examples where they have recognised existing highway features and demonstrate experience of managing the risk or effect in temporary traffic management systems.</p>
<b>5. (Core)</b>	<b>Traffic data in the design and engineering process.</b>	<p>Candidates will explain in detail the types of traffic data available to the Temporary Traffic Management Engineer.</p> <p>Candidates will explain in detail practical examples where they have obtained or used data on exiting traffic flow to assess network impact and capacity in Temporary Traffic Management systems.</p>

	<b>Module</b>	<b>Competency Content</b>
<b>6. (Core)</b>	<b>Traffic sign face design diversion on rural and urban roads.</b>	<p>Candidates will explain in detail the guidance provided by Traffic Signs Manual Chapter 7 when preparing designs for non-prescribed signs on rural and urban roads.</p> <p>Candidates will explain in detail practical examples where they have interpreted the requirements of the Traffic Signs Manual Chapter 7 to prepare designs and manufacturing details for non-prescribed signs used in connection with:</p> <ul style="list-style-type: none"> <li>• Diversion routes</li> <li>• Rural and urban road</li> </ul> <p>Temporary Traffic Management Systems</p>
<b>7. (Core)</b>	<b>Traffic sign face design.</b>	<p>Candidates will explain in detail the guidance provided by Traffic Signs Manual Chapter 8 and Chapter 7 when preparing sign face designs for narrow lane and contraflow 'Standard' systems on High Speed Dual Carriageway roads.</p> <p>Candidates will explain in detail practical examples where they have interpreted the requirements of the Traffic Signs Manual Chapter 7 and Chapter 8 and experience of preparing manufacturing details for signs used in connection with lane restrictions at Narrow Lane or Contraflow systems on High Speed Dual Carriageway roads.</p>
<b>8. (Core)</b>	<b>Traffic management systems on rural and urban roads subject to relaxations.</b>	<p>Candidates will explain in detail the guidance provided by Traffic Signs Manual Chapter 8 and Safety at Street Works and Road Works – ACOP in engineering Temporary Traffic Systems subject to relaxations on Rural and Urban Roads.</p> <p>Candidates will explain in detail practical examples where they have interpreted the requirements of the Traffic Signs Manual Chapter 8 and ACOP together with experience of engineering traffic management systems, subject to relaxations, used in connection with temporary traffic situations on Rural and Urban Roads.</p> <p>Candidates will explain in detail the Traffic Signs Manual Chapter 8 and ACOP for Highway Inspections, surveys, emergencies, works of short duration and moving works.</p>

	<b>Module</b>	<b>Competency Content that is required to be demonstrated.</b>
<b>9. (Core)</b>	<b>Traffic management systems on rural and urban roads.</b>	<p>Candidates will explain in detail the guidance provided by Traffic Signs Manual Chapter 8 and Safety at Street Works and Road Works – ACOP in engineering Temporary Traffic Systems on Rural and Urban Roads.</p> <p>Candidates will explain in detail practical examples where they have interpreted the requirements of the Traffic Signs Manual Chapter 8 and ACOP together with experience of engineering traffic management systems used in connection with long term temporary traffic situations on rural and urban Roads.</p> <p>Candidates will explain in detail practical examples where they have interpreted the requirements of the Traffic Signs Manual Chapter 8 and ACOP at temporary situations for:</p> <ul style="list-style-type: none"> <li>• Non-motorised users</li> <li>• Vulnerable persons</li> <li>• Permanent signalised junctions and crossings</li> <li>• Diversions of traffic</li> <li>• Temporary side road junctions for access to Construction sites or works</li> </ul>
<b>10. (Core)</b>	<b>Traffic management systems on high speed dual carriageway roads subject to relaxations.</b>	<p>Candidates will explain in detail the guidance provided by Traffic Signs Manual Chapter 8 and other related industry documents in engineering Temporary Traffic Systems subject to relaxations on High Speed Dual Carriageway Roads.</p> <p>Candidates will explain in detail practical examples where they have interpreted the requirements of the Traffic Signs Manual Chapter 8 and other related industry documents together with experience of engineering traffic management systems, subject to relaxations, used in connection with temporary traffic situations on High Speed Dual Carriageways.</p> <p>Candidates will explain in detail the Traffic Signs Manual Chapter 8 and other related industry documents for Highway Inspections, surveys, emergencies, works of short duration and mobile works on High Speed Dual Carriageways.</p>
<b>11. (Core)</b>	<b>Traffic management systems on high speed dual carriageway roads.</b>	<p>Candidates will explain in detail the guidance provided by Traffic Signs Manual Chapter 8 and other related industry documents in engineering Temporary Traffic Systems on High Speed Dual Carriageway Roads.</p> <p>Candidates will explain in detail practical examples where they have interpreted the requirements of the Traffic Signs Manual Chapter 8 and other related industry documents together with experience of engineering and managing the risk in operation of traffic management systems, used in connection with temporary traffic situations on High Speed Dual Carriageways.</p>



	<b>Module</b>	<b>Competency Content</b>
<b>12. (Core)</b>	<b>Temporary barrier systems.</b>	<p>Candidates will explain in detail the application of Temporary Vehicle Restraint System guidance available to the Temporary Traffic Management Engineer.</p> <p>Candidates will explain in detail practical examples where they have interpreted and applied the requirements of the TD19 and other relevant industry guidance in connection with the provision of Temporary Vehicle Restraint Systems in temporary traffic management systems on Rural and Urban Roads and High Speed Dual Carriageways.</p>
<b>13. (Core)</b>	<b>Road markings.</b>	<p>Candidates will explain in detail the application of Road Marking guidance available to the Temporary Traffic Management Engineer.</p> <p>Candidates will explain in detail practical examples where they have interpreted and applied the requirements of the Traffic Signs Manual Chapters 5 and 8 and other relevant guidance, including the positioning of upright signs, in connection with the provision of road markings at Temporary Traffic Systems that involve:</p> <ul style="list-style-type: none"> <li>• Temporary Junctions</li> <li>• Lane destinations</li> <li>• Changeovers</li> <li>• Narrow lanes or Contraflows</li> </ul>
<b>14. (Core)</b>	<b>Technology.</b>	<p>Candidates will explain in detail the application of ITS systems available to the Temporary Traffic Management Engineer.</p> <p>Candidates will explain in detail practical examples where they have interpreted and applied the requirements of the Traffic Signs Manual Chapter 8 and other industry guidance to use approved ITS equipment at temporary situations to monitor or communicate with users or control risk.</p>
<b>15. (Core)</b>	<b>Informing and communicating with road user stakeholders.</b>	<p>Candidates will explain in detail the managing of internal and external stakeholders in connection with Temporary Traffic Management situations.</p> <p>Candidates will explain in detail practical examples of the use of electronic and roadside methods to interpret and apply the requirements of Traffic Signs Manual Chapter 8 and other industry Acts or guidance, to inform and communicate effectively with internal and external stakeholders at temporary traffic situations.</p>

## Professional Diploma in Road Safety Engineering

To obtain the Professional Diploma in Road Safety Engineering, you must successfully demonstrate your competence within at least **FIVE** of the following twelve modules. This is made up of **FOUR** core modules and **FOUR** of the eight optional modules.

	<b>Module</b>	<b>Competency Content</b>
<b>1. (Core)</b>	<b>Road safety engineering principles.</b>	<p>Candidates will explain in detail the principles behind the design and implementation of highway improvement schemes intended to reduce the number and severity of collisions.</p> <p>Candidates will explain in detail practical examples of how road safety engineering proposals address the collision issues identified. In addition candidates will provide evidence of recent developments in Road Safety Engineering.</p>
<b>2. (Core)</b>	<b>Health &amp; Safety and CDM.</b>	<p>Candidates will explain in detail Health &amp; Safety with regards to site visits, safe systems of working and an understanding of implications of road safety engineering recommendations on those constructing, operating or maintaining the highway.</p> <p>Candidates will explain in detail the CDM regulations how Road safety measures may have been influenced by these issues.</p>
<b>3. (Core)</b>	<b>Collision data, analysis and scheme identification.</b>	<p>Candidates will explain in detail collision investigation techniques using STATS 19 data or the detailed investigation of single incidents.</p> <p>Candidates will explain in detail development in collision trends and other sources of data such as conflict studies, damage only incidents and Police records and analyse this data against the appropriate control data, such as national or local average statistics or control sites.</p> <p>Candidates will explain in detail statistical analysis. Candidates will explain in detail evidence led identification of scheme options and remedial measures. In addition, candidates will provide evidence of the assessment of single sites, route treatments or mass action plans.</p>
<b>4. (Core)</b>	<b>Highway design and traffic engineering.</b>	<p>Candidates will explain in detail how highway design can affect road safety and how sound design principals can reduce collision risk. In addition, candidates will provide evidence of factors such as visibility, road alignment, surface finished and road side features.</p>

	<b>Module</b>	<b>Competency Content</b>
5.	<b>Monitoring / post opening performance evaluation.</b>	<p>Candidates will explain in detail the monitoring of recently constructed highway improvement schemes. In addition, candidates will provide evidence of a comparison of pre and post collision data and evaluation against control data. Example formats could be Stage 4 Road Safety Audits or Post Opening Project Evaluation (POPE). This could include monitoring of collisions against wider local and national targets.</p> <p>Candidates will explain in detail the use of statistical tests and how these can help in the evaluation and monitoring of schemes.</p> <p>Candidates will explain in detail the development of monitoring plans for road safety related projects.</p>
6.	<b>Road safety audit.</b>	<p>Candidates will explain in detail Road Safety Audits. This will include the administration process, reporting and roles and responsibilities in accordance with a defined Terms of Reference. e.g. DMRB HD 19/15</p>
7.	<b>Road safety policy/ targets/ requirements &amp; advice/ best practice guidance documents.</b>	<p>Candidates will explain in detail input into road safety policy documents or the development of road safety targets at a national and / or local level. Competence can also be demonstrated through detailed explanation in the involvement and preparation of the Requirements and Advice Documents (RAD), research and best practice guidance and the writing of specifications for road safety related projects.</p>
8.	<b>Economics/ funding.</b>	<p>Candidates will explain in detail of economic appraisal of road safety schemes for example the calculation of First Year Rate of Returns (FYRR) or completion of Highways England SAR process. Candidates will explain in detail the allocation process for the funding of Road Safety Schemes.</p>
9.	<b>Legal issues in road safety.</b>	<p>Candidates will explain in detail the reasons why a Road Safety Audit is undertaken in terms of 1980 Highways Act, 1988 Road Traffic Act and Roads (Scotland) Act 1984.</p> <p>Candidates will explain in detail the following:</p> <ul style="list-style-type: none"> <li>• 2007 Road Death Investigation Manual</li> <li>• The Corporate Manslaughter and Corporate Homicide Act 2007</li> <li>• The Manslaughter by Gross Negligence Common Law</li> <li>• The EC Directive 2008/96/EC</li> </ul>

	<b>Module</b>	<b>Competency Content</b>
10.	<b>Risk assessment.</b>	Candidates will explain in detail the various types of risk assessment that can be used to evaluate road safety issues and highway design decision making. In addition, candidates will provide evidence of how risks have been evaluated in terms of frequency and severity and how this has influenced the decision-making process.
11.	<b>Education/ inform/ training/ publicity.</b>	Candidates will explain in detail of stakeholder or industry engagement. This could include: <ul style="list-style-type: none"> <li>• Consultation and publicity of scheme proposals</li> <li>• Targeted information campaigns</li> <li>• Value Management workshops</li> <li>• Delivering of road safety training or seminars</li> </ul>
12.	<b>Safety inspections.</b>	Candidates will explain in detail how highway safety inspections are used to identify defects which may introduce a road safety risk to road users. In addition, candidates will provide evidence of the use of risk assessment to ensure funding is allocated appropriately.

## Professional Diploma in Traffic Signal Control

To obtain the Professional Diploma in Traffic Signal Control, you must successfully demonstrate your competence within the **ELEVEN** core modules.

	<b>Module</b>	<b>Competency Content</b>
1. (Core)	<b>Commissioning and maintenance of works.</b>	<p>Candidates will explain in detail how to capture and interpret feedback from stakeholders to add value to schemes and the processes and methods for carrying out consultation.</p> <p>Candidates will explain in detail how to prepare a brief reviewing the options available and making recommendations.</p> <p>Candidates will explain in detail how to prepare and to award a tender (including terms and conditions) together with carrying out tender assessments.</p> <p>Candidates will demonstrate an appropriate knowledge of contract preparation, how to interpret and apply technical advice and guidance. This should include reference to DMRB or Manual for Streets, Technical Directives and Statutory Requirements.</p> <p>Candidates will explain in detail Asset Management, equipment life cycle, the need for planned maintenance, modernisation and replacement of damaged equipment.</p> <p>Candidates will explain in detail the issues associated with planning, associated timescales and implementation of a scheme, together with how to resolve and mitigate any problems encountered.</p>

	<b>Module</b>	<b>Competency Content</b>
<b>2. (Core)</b>	<b>Health &amp; Safety systems.</b>	<p>Candidates will explain in detail how to identify, minimise and manage the effect of risks and hazards during the whole life cycle of the scheme.</p> <p>Candidates will explain in detail the implementation of the relevant health and safety at work regulations.</p> <p>Candidates will explain in detail the issues associated with quality control and maintaining the health and safety file.</p>
<b>3. (Core)</b>	<b>Standards and specifications.</b>	<p>Candidates will explain in detail how to apply and interpret standards, technical advice, guidance and best practice. This should include reference to DMRB, Technical Directives, Traffic Advisory Leaflets, Statutory Requirements.</p>
<b>4. (Core)</b>	<b>Legal and other issues.</b>	<p>Candidates will explain in detail the drafting of statement of reasons, knowledge of statutory requirements, process for implementation, preparation of the schedule of restriction.</p> <p>Candidates will explain in detail the effect of various factors on a scheme including local policies and objectives.</p>
<b>5. (Core)</b>	<b>Communications.</b>	<p>Candidates will explain in detail how to communicate effectively with stakeholders and how feedback is used.</p> <p>Candidates will explain in detail how to present proposals to enable decisions to be made.</p>
<b>6. (Core)</b>	<b>Maintenance</b>	<p>Candidates will explain in detail fault management systems and the documentation of fault analysis, investigation and methods of monitoring and recording potential faults for signals.</p> <p>Candidates will explain in detail relevant financial control systems.</p> <p>Candidates will explain in detail appropriate KPIs and the effect of these on a contractor's performance.</p> <p>Candidates will explain in detail remote monitoring systems and how to implement and use to monitor and capture operational data.</p>
<b>7. (Core)</b>	<b>Post commissioning of works.</b>	<p>Candidates will explain in detail how to carry out post-project appraisal including any necessary data collection. This includes an ability to interpret the results of the appraisal and formulate an action plan if required.</p> <p>Candidates will explain in detail how to carry out and document FATs.</p> <p>Candidates will explain in detail how to carry out a SAT and make adjustments.</p>

	<b>Module</b>	<b>Competency Content</b>
<b>8. (Core)</b>	<b>Preparation and pre-design.</b>	<p>Candidates will explain in detail what surveys are appropriate and how to interpret the output.</p> <p>Candidates will explain in detail how to follow and apply technical advice and interpret guidance on best practice and their relevance.</p>
<b>9. (Core)</b>	<b>Audits and reviews.</b>	<p>Candidates will explain in detail how to conduct or respond to Road Safety Audits/Safety Review.</p> <p>Candidates will explain in detail how to evaluate the most appropriate layout for traffic signal control to achieve the aims of the scheme.</p> <p>Candidates will explain in detail how to evaluate a TA and make appropriate comments.</p>
<b>10. (Core)</b>	<b>Software and application.</b>	<p>Candidates will explain in detail how to evaluate different layouts for traffic signal-controlled junctions.</p> <p>Candidates will explain in detail how to evaluate the layout for the network.</p>
<b>11. (Core)</b>	<b>Further design principles.</b>	<p>Candidates will explain in detail how to apply the results of microsimulation models in traffic signal schemes.</p> <p>Candidates will explain in detail how to complete controller specification forms.</p> <p>Candidates will demonstrate an appropriate knowledge of the preparation and interpretation of UTC/SCOOT plans, timing reviews, contingency plans, timetables and an understanding of how a UTC system functions together with techniques to validate and assess performance.</p> <p>Candidates will explain in detail practical knowledge of measuring various parameters on site.</p> <p>Candidates will explain in detail how MOVA works together with techniques to validate and assess performance including preparation of the MOVA data set. Candidates will explain in detail measuring various parameters on site.</p> <p>Candidates will explain in detail the benefits of linking signals and show how this could be achieved.</p>

## Professional Diploma in Traffic Sign Design

To obtain the Professional Diploma in Traffic Sign Design, you must successfully demonstrate your competence within at least **EIGHT** of the following fifteen modules. This is made up of **SIX** core modules and **TWO** of the nine optional modules.

	Module	Competency Content
1. (Core)	<b>Introduction to Traffic Sign Design and road markings.</b>	<p>Candidates will explain in detail the fundamental reasons why traffic signs are erected and how they serve different categories of the road user (including pedestrians, cyclists and equestrians) including what is and what is not defined as traffic sign.</p> <p>Candidates will explain in detail relevant legislation and terminology such as: TSRGD, TSM, LTN, TAL, x-height, stroke width, working drawings.</p>
2. (Core)	<b>National legislation and guidance.</b>	<p>Candidates will explain in detail primary and secondary legislation including details of the relevant documents: RTRA 1988, TSRGD 2016, Traffic Sign Manuals, Transport Advisory Leaflets, DfT Authorisations, DMRB and further legislation relating to regulatory signs and civil enforcement.</p> <p>Candidates will explain in detail the differing rules for England, Scotland, Wales and Northern Ireland and how to decipher the statutory instruments and how they are applied.</p> <p>Candidates will explain in detail the discretion that traffic and highway authorities have to make site-specific decisions.</p>
3. (Core)	<b>Legibility and conspicuity.</b>	<p>Candidates will explain in detail the science behind reading a sign from a moving vehicle. In addition, candidates will provide evidence of how the Transport alphabets were designed and why we (mainly) used mixed case lettering. This includes, the difference between legibility and conspicuity, the effect of the amount of information on the sign and how to decide upon siting, visibility and text x-height or sign size, including lettering size on parking plates and signs for pedestrians.</p>
4. (Core)	<b>Signs and safety.</b>	<p>Candidates will explain in detail the effects of all types of traffic sign and marking upon road safety. The use of warning signs and markings specifically to address safety concerns, categories of warning sign and their benefits, problems resulting from over use of warning signs, optional regulatory signs and markings.</p>
5. (Core)	<b>Road markings.</b>	<p>Candidates will explain in detail the legal status of different road markings (particularly with reference to 2016 TSRGD). Highway authorities' duties in relation to markings.</p> <p>Candidates will demonstrate an appropriate knowledge of the concept of 'naked streets' and their merits.</p> <p>Candidates will explain in detail road marking materials, maintenance of markings, reflective and tactile marking and reflecting road studs and their uses. Candidates will explain in detail the interaction between markings and allowable combinations.</p>

	<b>Module</b>	<b>Competency Content</b>
<b>6. (Core)</b>	<b>Route guidance and directional sign strategy.</b>	<p>Candidates will explain in detail the vital part played by direction signs including, the different categories of direction sign and their uses.</p> <p>Candidates will explain in detail the UK system of coloured panels and patches for route status and destination category, the need to ensure continuity and the science behind the choice of destinations, which involves the concert of 'signing trees'.</p> <p>Candidates will explain in detail alternative methods of dealing with overload – too many destinations to fit on signs.</p>
<b>7.</b>	<b>Directional sign design and siting.</b>	<p>Candidates will explain in detail the siting of signs and some of the problems this can present including how this determines how large each sign can be and how far away it can be seen.</p> <p>Candidates will explain in detail the detailed rules in TSM Chapter 7 for sign layout design, the options open to the designer and a detailed analysis of the common problem of being unable to fit the desired size of sign at the optimum location.</p>
<b>8.</b>	<b>Temporary signing.</b>	<p>Candidates will explain in detail the current requirements for temporary signs now illustrated in TSRGD and their scope and flexibility.</p> <p>Candidates will explain in detail TSRGD 2016 Schedule 13, focussing on new options for wicket type lane indication signs, the large range of options now possible under Part 9 and the requirement for a date on the back of some temporary signs.</p> <p>Candidates will explain in detail how best to manage temporary signs, whether to give permission to motoring and other organisations to erect them and the maximum durations permitted for their display.</p>
<b>9.</b>	<b>On-street Parking.</b>	<p>Candidates will explain in detail the current requirements for signing and marking of all types of on-street parking control in the 2016 TSRGD. This will include, how it is now possible to use marking alone or upright sign alone for some measures and how a parking place is indicated on the ground, with particular reference to parking signs for payment and for different rules to apply at different times.</p> <p>Candidates will explain in detail the options used with appreciation of the needs of the road user to achieve a regime that is understandable, enforceable and not unnecessarily cluttered. This includes consideration of the different options and the conflicting requirements, particularly when designing parking schemes for residential areas, the signing options for assisting blue badge holder holders and people with severe mobility impairments in addition to the options for school entrances and bus stops.</p>



	<b>Module</b>	<b>Competency Content</b>
10.	<b>Parking zones.</b>	<p>Candidates will explain in detail Controlled Parking Zones (CPZs) and how the public (and sometime adjudicators) have difficulty with them.</p> <p>Candidates will explain in detail the three main types of parking zone, plus the option to use individual controls. This includes the pros and cons of CPZs, RPZs, PPAs and in what circumstances where each is recommended.</p>
11.	<b>Traffic sign clutter.</b>	<p>Candidates will explain in detail what is clutter, the cost of signs and how clutter can be reduced at the design stage. This includes, how to deal with existing clutter by means of street audits and maintaining an inventory, when decluttering what signs should be removed completely, which reduced in number and which combined or remade on less obtrusive assemblies.</p> <p>Candidates will explain in detail innovative mounting techniques and reducing obstruction of the footway.</p>
12.	<b>Structural and passive safety considerations.</b>	<p>Candidates will explain in detail the relevant standards and design methods for traffic sign structures, including the standards BS EN 12899-1 and BS EN 1991-1-4, and how to select sign components and a design wind load for the location. This includes foundation requirements and the use of software, crash friendly sign supports and how to select and design passively safe structures using the appropriate supports.</p>
13.	<b>Bus lanes, banned turns, speed limits and other moving traffic regulations.</b>	<p>Candidates will explain in detail how to determine whether and how far in advance signs are visible and the psychology of driver perception to gauge what can be readily understood in complex situations. This includes the requirements to ensure that regulatory signing is enforceable, particularly within the greater flexibility allowed by the 2016 TSRGD.</p>
14.	<b>Signing for cyclists and pedestrians.</b>	<p>Candidates will explain in detail the regulations for signs intended for pedestrians, including the option to put walking times instead of distances on signs intended for pedestrians.</p> <p>Candidates will explain in detail specific signing for cyclists both on existing highways, and on both urban and rural cycle tracks and paths.</p> <p>Candidates will explain in detail the needs of cyclists, how to differentiate their signs and how to convey safety, as well as directional information.</p>
15.	<b>Specification and procurement.</b>	<p>Candidates will explain in detail how to get the signs manufactured and installed correctly, efficiently and economically. This includes how to specify to the necessary standards, what level of detail to prescribe for the constructional aspects and how to select contractors for the process.</p> <p>Candidates will explain in detail that they are aware of the different ways in which CE marking is achieved and whether to place separate contracts for sign faces and sign erection or to use a single contractor.</p> <p>Candidates will explain in detail the checks needed and how to deal with on-site queries and problems encountered particularly with respect to the additional requirements for electrically lit signs.</p>

## Professional Diploma in Winter Services – Decision Makers & Managers

To obtain the Professional Diploma in Winter Services, you must successfully demonstrate your competence within all **EIGHT** of the following eight modules.

Doc. No.	Module	Competency Content
1. (Core)	<b>The law, the code and your policy relating to Winter Services.</b>	Candidates will explain in detail the law relating to winter services and how the duty is discharged through policy and procedure. Candidates will explain in detail practical knowledge of an assessment of the justification and of how risk is addressed.
2. (Core)	<b>The importance of record keeping.</b>	Candidates will explain in detail legal accusations and the basis of the defence. In addition, candidates will provide evidence of appropriate winter documentation and a well-justified assessment of improvements.
3. (Core)	<b>Winter Service plant and delivery.</b>	Candidates will explain in detail: <ul style="list-style-type: none"> <li>• Plant and calibration</li> <li>• Salt storage and management</li> <li>• Human resources</li> <li>• De-icer choice</li> </ul> Candidates will explain in detail how winter services plant and delivery relates to Appendix H. This includes timescales for complying with App H or justification for not complying.
4. (Core)	<b>Severe winter weather and snow response.</b>	Candidates will explain in detail practical knowledge of snow plan operation and resources used, including command and control of a severe event detailing key internal and external communications with stakeholders and partners.
5. (Core)	<b>Winter communications.</b>	Candidates will explain in detail how communications support the decision-making process, identifying and assessing pre-winter, operational and severe weather communication in terms of different media used, including broadcast, written and social, with public, stakeholders and partners. Candidates will explain in detail practical knowledge of how feedback is obtained, what it reveals and how it is being used to shape the service.
6. (Core)	<b>Winter road meteorology.</b>	Candidates will explain in detail practical knowledge of the range of weather information available and how it can be used, by listing them and an assessment of which are being used and which could have benefit if used.
7. (Core)	<b>Ice prediction systems and monitoring.</b>	Candidates will explain in detail how weather is monitored for change, using ice prediction systems and offer an assessment as to how effective this approach is and whether it could be improved.
8. (Core)	<b>Decision making.</b>	Candidates will explain in detail the decision-making process with reference to WMH Appendix H. Candidates will demonstrate an appropriate practical knowledge of the forecast (eg text and hazards), how risk and confidence are considered in the forecast, their decision-making rationale for each scenario and a critical assessment of how it could be improved.

## 12. Document matrix

Please map how your evidence documents meet each module in a document matrix. An example of this would be:

Doc. No.	Doc Name	Module 1	Module 2	Module 5	Module 8
1.	Drawing of roundabout design	✓			✓
2.	CAD drawing of approach junction		✓		

## 13. Statement by applicant

You must sign and date the declaration in section 15. *We will not accept any application without this declaration signed.*

## 14. Completing your submission

Please follow the guidance in the application form regarding our required format for Professional Diploma submissions.

All submissions must be presented in a single ring binder or lever arch folder. Any other style of folder or binding, or without the coversheet affixed will be returned to you.

Please send your complete submission and this form to:

**Membership, Institute of Highway Engineers, Floor 32–34, 286 Euston Road, London, NW1 3DP**

*Please note: We reserve the right to reject and return any submission that does not include all of the documents and attachments marked on the checklist at the back of this form, or with sections of this application form incomplete or left blank unless not required.*

## 15. Electronic copy of your submission

Please follow the guidance in the application form and supply us with a digital copy of your Professional Diploma folder and any documents you have submitted on a writeable CD or USB memory stick.

## 16. Payment form

If you have attended one of our Professional Diploma courses, there are no further fees to pay as part of your formal submission for assessment as your course fee includes the Professional Diploma fee.

If you are applying individually for your Professional Diploma under the Knowledge Based Route the fee required as part of your application comprises of (2019 rates):

IHE members: £125.00

Non IHE members: £175.00

Please check our website for up-to-date fee information.

## 17. Checklist

This section provides you with an opportunity to ensure you have included all the applicable documents and paperwork we have asked for. It also helps us to ensure we have received all of your submission when we process your application.

## Section C

This section is designed for applicants who wish to use their IHE Professional Diploma as the basis for Engineering Council registration at Incorporated Engineer (IEng) level. The two processes are designed to build upon each other and applying for IEng alongside your Professional Diploma is easy.

To gain Engineering Council registration, engineers and technicians prove their competence and commitment in a Professional Review of their portfolio submission to the IHE, followed by a Professional Review Interview. Incorporated Engineers are the mainstream operational managers of current technology and are at the forefront of developing technology. They are characterised by their ability to act as exponents of today's technology through creativity and innovation, they maintain and manage applications of current and developing technology and may undertake engineering design, development, manufacture, construction and operations. Incorporated Engineers are engaged in technical, financial and commercial planning and management and they demonstrate a personal and professional commitment to society, to their profession and to the environment.

In order to obtain IEng registration you will need to be an existing IHE member. Please refer to our website at [www.theihe.org/membership](http://www.theihe.org/membership) if you need to apply for IHE membership.

Becoming an Incorporated Engineer demonstrates a commitment to professional standards, setting you ahead of unregistered engineers and showing a pride in your achievements.

## Getting started

Please download a copy of the IHE IEng guidance booklet from the Highway Engineering Academy website or the IHE Members Area. This is essential for completing your application and contains all the guidance and support you require to make a successful IEng application.

If you have other qualifications which do not fulfil the Standard Route criteria, or none at all, the IHE Professional Diploma will enable you to reach the academic base for IEng through individual assessment. This is divided into two areas: Further Learning and the Personalised Report Option.

1. If you hold an approved HNC or HND, you can use your Professional Diploma assessment portfolio as Further Learning to 'top up' your existing civil Engineering qualifications to IEng level. You will need to ensure your HNC or HND has been accredited by the IHE or the Joint Board of Moderators (of which the IHE is a member) by consulting the list available on the JBM website [www.jbm.org.uk/GeneralContent.aspx?ContentID=21](http://www.jbm.org.uk/GeneralContent.aspx?ContentID=21)

2. If you hold no qualifications at all, or qualifications that are in a different specialism and are not accredited, you can use your Professional Diploma assessment portfolio as a Personalised Report. The Technical Report Option shows you have the required learning and knowledge at IEng level. This will also be examined in a second Personalised Report interview.

By using your Professional Diploma assessment portfolio in this way, you will achieve the academic benchmark for Incorporated Engineer. Once you have received confirmation of this from the IHE Academic Standards Panel you can make the second Professional Review submission for IEng. More information is detailed in the IHE IEng guidance booklet

## 1. IEng Academic Standards Panel Coversheet

Please complete the coversheet in section 1 of section C of the application form. This must be affixed to the front of your folder.

All submissions must be presented in a single ring binder or lever arch folder. You should use file dividers to enable us to easily identify the relevant parts of your evidence folder. These should cross reference with the relevant sections of this form.

*Please note: Submissions presented in any other style of folder or binding, or without the coversheet attached will be returned to you.*

## 2. Your qualifications

We require copies of your certificates for the further and higher education courses you have listed in section 6 of the Professional Diploma application form. These should be authenticated (signed and dated) by either your Line Manager, Proposer or Seconder who can confirm that these are true copies of the original certificates. Do not send us original certificates as these will not be returned to you.

## 3. Assessment Portfolio

You will need to produce a second copy of your Professional Diploma Assessment Portfolio. However, if you wish to use this as the basis for IEng registration you will need to insert an additional right-hand margin and throughout your portfolio annotate where you have achieved Engineering Council IEng Learning Outcomes. These Learning Outcomes are the same as those Higher Education providers need to meet in order to get JBM accreditation for their educational programme and are detailed below:

### 1. Science and mathematics

- 1.1 Knowledge and understanding of the scientific principles underpinning relevant current technologies, and their evolution.
- 1.2 Knowledge and understanding of mathematics and an awareness of statistical methods necessary to support application of key engineering principles.

### 2. Engineering analysis

- 2.1 Ability to monitor, interpret and apply the results of analysis and modelling in order to bring about continuous improvement.
- 2.2 Ability to apply quantitative methods in order to understand the performance of systems and components.
- 2.3 Ability to use the results of engineering analysis to solve engineering problems and to recommend appropriate action.
- 2.4 Ability to apply an integrated or systems approach to engineering problems through know-how of the relevant technologies and their application.

### **3. Design**

- 3.1 Be aware of business, customer and user needs, including considerations such as the wider engineering context, public perception and aesthetics.
- 3.2 Define the problem, identifying any constraints including environmental and sustainability limitations; ethical, health, safety, security and risk issues; intellectual property; codes of practice and standards.
- 3.3 Work with information that may be incomplete or uncertain and be aware that this may affect the design.
- 3.4 Apply problem-solving skills, technical knowledge and understanding to create or adapt design solutions that are fit for purpose including operation, maintenance, reliability etc.
- 3.5 Manage the design process, including cost drivers, and evaluate outcomes.
- 3.6 Communicate their work to technical and non-technical audiences.

### **4. Economic, legal, social, ethical and environmental context**

- 4.1 Understanding of the need for a high level of professional and ethical conduct in engineering and a knowledge of professional codes of conduct.
- 4.2 Knowledge and understanding of the commercial, economic and social context of engineering processes.
- 4.3 Knowledge of management techniques that may be used to achieve engineering objectives.
- 4.4 Understanding of the requirement for engineering activities to promote sustainable development.
- 4.5 Awareness of relevant legal requirements governing engineering activities, including personnel, health & safety, contracts, intellectual property rights, product safety and liability issues.
- 4.6 Awareness of risk issues, including health & safety, environmental and commercial risk.

### **5. Engineering practice**

- 5.1 Knowledge of contexts in which engineering knowledge can be applied (eg operations and management, application and development of technology, etc)
- 5.2 Understanding of and ability to use relevant materials, equipment, tools, processes, or products.
- 5.3 Knowledge and understanding of workshop and laboratory practice.
- 5.4 Ability to use and apply information from technical literature.
- 5.5 Ability to use appropriate codes of practice and industry standards.
- 5.6 Awareness of quality issues and their application to continuous improvement.
- 5.7 Awareness of team roles and the ability to work as a member of an engineering team.

### **6. Additional general skills**

- 6.1 Apply their skills in problem solving, communication, information retrieval, working with others and the effective use of general IT facilities.
- 6.2 Plan self-learning and improve performance, as the foundation for lifelong learning/CPD.
- 6.3 Plan and carry out a personal programme of work.
- 6.4 Exercise personal responsibility, which may be as a team member.

As you read through your Professional Diploma Assessment Portfolio you should bear these Learning Outcomes in mind. Where you feel you have detailed an activity you have undertaken or provided evidence of your work, that demonstrates evidence of learning you should annotate the Learning Outcome in the right-hand margin. Remember, this process is focused towards what you have learnt and where you can show your engineering knowledge and understanding, it is not concerned with your professional or managerial competence.

The IHE Academic Standards Panel will receive a copy of your Assessment Portfolio. This Panel is made up of engineering academics and senior industry professionals. They will assess your Portfolio against the Engineering Council Learning Outcomes and have the ability to approve your Professional Diploma Assessment Portfolio as evidence of IEng level learning. If you receive Academic standards Panel approval, you can move forward to preparing your separate IEng Professional Review portfolio of which more information is detailed in the IHE IEng guidance booklet.

If the Panel are not satisfied they have seen sufficient evidence of IEng level learning in your Assessment Portfolio they will provide you with information and guidance on how to proceed and address their concerns.

#### 4. Completing your submission

We require an additional copy of your Professional Diploma portfolio for your IEng submission. All submissions must be presented in a single ring binder or lever arch folder. Any other style of folder or binding, or without the coversheet affixed will be returned to you.

Please send your complete submission and this form to:

**Membership, Institute of Highway Engineers, Floor 32–34, 286 Euston Road, LONDON, NW1 3DP.**

*Please note: We reserve the right to reject and return any submission that does not include all of the documents and attachments marked on the checklist at the back of this form, or with sections of this application form incomplete or left blank unless not required.*

#### 5. Electronic copy of your submission

Please follow the guidance in the application form and supply us with a digital copy of your IEng Personalised Report or Further Learning Report documents you have submitted on a writeable CD or USB memory stick.

#### 6. Checklist

This section provides you with an opportunity to ensure you have included all the applicable documents and paperwork we have asked for. It also helps us to ensure we have received all of your submission when we process your application.