

Annex 3C – UKSPEC for Chartered Engineers working in discipline for Fire Engineering (as published by the IFE).



THE INSTITUTION OF FIRE ENGINEERS
FOUNDED 1913 • INCORPORATED 1924

IPD OBJECTIVES FOR CHARTERED ENGINEERS

These IPD Objectives are based on the Engineering Council generic competencies and set out the related skills and knowledge of the discipline of fire engineering.

You are **not** expected to be fully competent in **all** of these objectives. You must, however, have broad based experience and responsibility in one or more aspects of fire engineering as well as some knowledge of related aspects.

OBJECTIVE		RANGE		EVIDENCE EXAMPLES
A	Use a combination of general and specialist fire engineering knowledge and understanding to optimise the application of existing and emerging technology.	A.1	Maintain and extend a sound theoretical approach in enabling the introduction of new and advanced technology and other relevant developments.	<ul style="list-style-type: none"> Identify and accept limits of personal knowledge and have a clear appreciation of how to extend capabilities by exploiting available sources of information and additional experience. Be conversant with key information resources in the field such as professional journals, the Internet and major seminars. Remain abreast of key developments in the field of Fire Engineering, such as changes in Regulations or major innovations and to be aware of key research/experimental programmes likely to have an influence in the field.
		A.2	Engage in the creative and innovative development of engineering technology and continuous improvement systems	<ul style="list-style-type: none"> Demonstrate an ability to take clear cognisance of client, user and community needs in determining the functional objectives of the intended fire safety solutions. Employ creativity and initiative in identifying possible fire safety solutions to achieve the objectives. Assess marketing needs and make a key contribution to marketing strategies. Identify constraints and explore opportunities for the development and transfer of technology whilst remaining aware of issues relating to the value of intellectual property. Assess the potential impact of emerging technologies, processes and procedures that may not be limited to within the Fire Engineering field but that may include developments in other engineering disciplines. Demonstrate a willingness to consider possible opportunities for the application of such developments within Fire Engineering designs. Demonstrate a willingness and ability to extend his or her knowledge base into related disciplines or fields. Promote co-operation across engineering discipline boundaries to enable the development of future potential opportunities that could result in better value and/or better performing Fire Engineering solutions.

Versions also published by IFE for IEng and EngTech registrants..

OBJECTIVE	RANGE	EVIDENCE EXAMPLES
B Apply appropriate theoretical and practical methods to the analysis and solution of fire engineering problems	B.1 Identify potential projects and opportunities	<ul style="list-style-type: none"> • Use personal experience, an understanding of the employer's commercial position and available Fire Engineering resources to identify potential projects or opportunities and consider their viability. • In terms of potential projects, possess an ability to identify potential project complexities and problems and be able to exercise original thought in determining a response to new Fire Engineering challenges that the project may introduce.
	B.2 Conduct appropriate research, and undertake design and development of engineering solutions	<ul style="list-style-type: none"> • Select the most appropriate engineering tools and aids to test the potential of design concepts and to determine design parameters for potential solutions. Such tools may include, but would not be limited to, physical or computer models, analytical or empirical calculation procedures, statistical analysis, risk assessment techniques, cost benefit analysis and value engineering assessment. • Analyse potential concepts, including an assessment of the impact of factors such as performance, reliability and maintainability. • Select suitable media and/or tools for demonstrating potential solutions to clients.
	B.3 Manage implementation of design solutions, and evaluate their effectiveness	<ul style="list-style-type: none"> • Prepare documented proposals that clearly identify and describe the fire safety solutions that have been engineered to satisfy the functional objectives of the project. • Ensure that any testing or proving requirements are discussed and that any potential problem areas are highlighted with options for modifications or adaptations identified as necessary. • Take corrective action to overcome shortcomings or omissions that are identified with the proposals. • Determine the impact on Fire Engineering design solutions of factors such as construction, installation, commissioning, life-cycle implications, technical support, training of users and shifting user needs. • Participate in consultation with affected parties on evaluation of the issues that affect them and how resolution of these issues will impact on Fire Engineering design. • Design and evaluate the effectiveness of agreed resolutions ensuring that improvements, modifications or rectifying actions are practicable and still meet the functional strategic objectives.

OBJECTIVE		RANGE		EVIDENCE EXAMPLES
C	Provide technical and commercial leadership	C.1	Plan for effective project implementation	<ul style="list-style-type: none"> Identify the factors affecting project implementation Prepare and develop project proposals and negotiate contractual arrangements with customers, suppliers and partners to secure the employer's commercial position. Analyse and organise the necessary resource provision required to execute the work.
		C.2	Plan, budget, organise, direct and control tasks, people and resources	<ul style="list-style-type: none"> Set work objectives and priorities including milestone outputs, project deadlines, quality standards and budgets. Organise project teams and exercise leadership over other engineers, technical and other personnel as appropriate. Monitor and/or audit tasks to ensure that work is executed as planned and determine what corrective actions are necessary as appropriate.
		C.3	Lead teams and develop staff to meet changing technical and managerial needs.	<ul style="list-style-type: none"> Agree objectives and work plans with teams and individuals Contribute to the identification of the training needs for teams and individuals in order to respond to changing technical and managerial requirements as well as to further their professional progression. Develop external and work-experience related training plans for teams and individuals and identify and procure appropriate training activities and resources. Undertake reviews of training effectiveness.
		C.4	Bring about continuous improvement through quality management	<ul style="list-style-type: none"> Promote quality throughout the organisation and its customer and supplier networks Contribute to the development of systems for quality management and foster the acceptance of the principles of quality control throughout the organisation. Perform work to appropriate quality standards and apply quality control and assurance techniques.
D	Demonstrate effective interpersonal skills	D.1	Communicate in English with others at all levels	<ul style="list-style-type: none"> Develop good personal relationships that are appropriate to the level of communication being used and communicate effectively in a manner that the circumstances of the project dictate. Ensure effective 2-way communication in discussions and be prepared to liaise with colleagues, peers and experts within and beyond the employer's organisation. Respond effectively and efficiently to all received communication, howsoever it is received.
		D.2	Present and discuss proposals	<ul style="list-style-type: none"> Select the most appropriate medium for clearly clarifying Fire Engineering Design objectives and select the most suitable method of communication using, words, images, audio and video as necessary. Communicate fluently in written and oral expression at an experienced professional standard and prepare and present lectures, reports and published papers at professional level. Feed back results to improve the proposals
		D.3	Demonstrate personal and social skills	<ul style="list-style-type: none"> Establish fire engineering teams capable of working towards collective goals and create, maintain and enhance effective working relationships. Be aware of the needs and concerns of others Develop the team, the individuals within the team and yourself to enhance performance. Provide negotiation, conflict resolution and counselling within the team and provide a conduit through which ideas, convictions and attitudes can be exchanged and conveyed. Demonstrate confidence and flexibility in dealing with new and changing interpersonal situations

OBJECTIVE		RANGE		EVIDENCE EXAMPLES
E	Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment	E.1	Comply with relevant Codes of Conduct	<ul style="list-style-type: none"> • Comply with rules of professional conduct of the IFE • Apply professional skill in the interests of the employer and client for whom you act in professional matters. • Give evidence, express opinions or make statements in an objective manner and on the basis of adequate knowledge. • Work constructively within all relevant legislation and regulatory frameworks, including social and employment legislation
		E.2	Manage and apply safe systems of work	<ul style="list-style-type: none"> • Take account of potential professional risks and liabilities and accept responsibility for them. • Consider and implement as necessary appropriate occupational health, safety and welfare requirements. • Develop and implement appropriate hazard identification and risk management systems • Manage, evaluate and improve these systems
		E.3	Undertake engineering activities in a way that contributes to sustainable development	<ul style="list-style-type: none"> • Promote the considerations and actions required in engineering practice to improve, sustain and restore the environment. • Be aware of the wise use of non-renewable resources through waste minimisation, recycling and the development of alternatives where possible. • Strive to achieve the beneficial objectives of Fire Engineering design whilst striving to minimise the consumption of raw materials and energy, and by designing sustainable management procedures. • Take account of life-cycle implications with respect to how Fire Engineering designs will impact on the environment. • Understand and secure stakeholder involvement in sustainable development • Use resources efficiently and effectively
		E.4	Carry out and record continuing professional development necessary to maintain and enhance competence in own areas of practice	<ul style="list-style-type: none"> • Undertake reviews of own development needs • Plan how to meet personal and organisational objectives • Carry out planned (and unplanned) CPD activities • Maintain evidence of competence development • Evaluate CPD outcomes against any plans made • Assist others with their own CPD

OBJECTIVE		RANGE		EVIDENCE EXAMPLES
		E5	Exercise responsibilities in an ethical manner	<p>Give an example of where you have applied ethical principles as described in the Engineering Council Statement of Ethical Principles. Full details of this statement are provided in the EngC UK-SPEC document, however, examples of such ethical principles might include:</p> <ul style="list-style-type: none"> • Recognising where an issue falls outside of your area of competence and managing its resolution appropriately. • Preventing avoidable danger to health and safety. • Treating all persons fairly and with respect. • Accepting appropriate responsibility for work carried out under your supervision. • Observing the proper duties of confidentiality owed to appropriate parties. • Raising a concern about a danger, risk, malpractice or wrongdoing which affects others ("blow the whistle") or supporting a colleague or any other person to whom you have a duty of care who in good faith raises such a concern. • Rejecting bribery and all forms of corrupt behaviour, and making positive efforts to ensure others do likewise. <p>Give an example of where you have applied/upheld ethical principles as defined by your organisation or company, which may be in its company or brand values.</p>