The Institution of Engineering Designers

The Standard for Registration:
Product Design and Computer-Aided Design (CAD)

Competence and Commitment

EDITION CONTROL: THE STANDARD FOR REGISTRATION – PRODUCT DESIGN AND COMPUTER-AIDED DESIGN (CAD) – COMPETENCE AND COMMITMENT

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This document is one of two closely-related documents published by the IED:

- Standard for Registration: Product Design and Computer-Aided Design (CAD)
- Accreditation of Product Design Educational Programmes

It is also closely linked with standards produced by the Engineering Council and the Society for the Environment. The IED is licenced by the Engineering Council and the Society for the Environment to assess individuals for their registration grades and to assess Higher Education courses in suitable disciplines.

See Engineering Council documents:

- The UK Standard for Professional Engineering Competence and Commitment (UK-SPEC)[1]
- Accreditation of Higher Education Programmes (AHEP)[2]
- Defining Characteristics and Learning Outcomes – AAQA first edition and AHEP fourth edition[3]

See Society for the Environment documents:

- Chartered Environmentalist Competences[4]
- Registered Environmental Practitioner Competences[5]

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[1] Version 4 Published August 2020 https://www.engc.org.uk/media/3417/uk-spec-fourth-edition.pdf

[2] Version 4 Published August 2020 https://www.engc.org.uk/media/3464/ahep-fourth-edition.pdf

[3] Published August 2020 https://www.engc.org.uk/media/3422/defining-characteristics-and-learning-outcomes-aaqa-and-ahep.pdf

[4] Edition 5.1 Published June 2020 https://socenv.org.uk/resource/resmgr/practice_direction/CEnv_Competences_06.10.20.pdf

[5] Edition 1.0 Published September 2020 https://cdn.ymaws.com/socenv.org.uk/resource/resmgr/files/registration/renvp/renvp_competences_v1.0.pdf

The Institution of Engineering Designers

The IED is governed by Royal Charter and is also a registered Charity. The Royal Charter is an instrument of incorporation granted by the UK monarch. It confers independent legal personality on the Institution of Engineering Designers and defines its objectives, constitution and powers to govern its own affairs.

The By-laws are the rules by which the Institution of Engineering Designers regulates itself.

Standard for Registration: Product Design and Computer-Aided Design (CAD)

This is the prescribed Standard that sets out the competence and commitment required for registration as Chartered Technological Product Designer (CTPD), Registered Product Designer (RProdDes), Registered Computer-Aided Design Manager (RCADMan) and Registered Computer-Aided Design Practitioner (RCP).

Accreditation of Educational Programmes for Product Design

This document sets out the prescribed Standard for the policy, context, rules and procedures for recognising learning and development programmes that help develop the competence and commitment set out in the Standard for Registration: Product Design and Computer-Aided Design (CAD).

Contents

Foreword

Product designers and CAD professionals respond to the needs of both society and business, solving complicated and complex challenges. Product designers and CAD professionals work in the art and practice of changing our world, enhancing welfare, health and safety while paying due regard to the environment.

Society places great faith in the product design profession, trusting its members to regulate themselves. By achieving and demonstrating professional competence and commitment for the purpose of registration, product designers and CAD professionals demonstrate that they are worthy of that trust.

This document forms the Standard used by the Institution of Engineering Designers to assess the competence and commitment of individual product designers and CAD professionals. It was developed by consultation with product designers representing both industry and academia.

Welcome

The purpose of the Standard for Registration: Product Design and Computer-Aided Design (CAD)

This document is the Standard for Registration: Product Design and Computer-Aided Design (CAD). Its primary purpose is to explain the competence and commitment requirements that people must meet and demonstrate to be registered in each of these registration categories:

- **Registered Computer-Aided Design Practitioner (RCP)**
- **Registered Computer-Aided Design Manager (RCADMan)**
- **Registered Product Designer (RProdDes)**
- **Chartered Technological Product Designer (CTPD)**

This document also explains:

- Why professional registration is important.
- How to achieve professional registration.
- What Product Designers and CAD professionals must do to maintain professional registration, including:
  - the requirement to maintain and enhance competence and;
  - the obligation to act with integrity and in the public interest.

Who the Standard is for

Many different users will find this document useful. However, it has been written primarily for these audiences:

- Individuals who are thinking about becoming professional registered.
- Employers of Product Designers and CAD professionals.
- People responsible for Product Designers' and CAD professionals' education or training.

The registration process

For most people, the first step towards IED professional registration is to become an IED Member (MIED). Membership is open to any individual who is working within the engineering design, product design or CAD professions as an engineer, designer or CAD specialist. The applicant should fill in a form and accompany this by the fee and a curriculum vitae (cv) to demonstrate their part in the profession. They should also indicate their registration aspirations when applying. The Membership Committee will assess the application and say whether, in its opinion, the registration aspirations are realistic or whether it might be advisable to pursue an alternative registration. The committee will also be able to indicate how the aspirations may be achieved and whether or not that can be done immediately.

Also see page 3 for references to the Engineering Council and Society for the Environment documents.

What is professional registration?

Professional registration verifies that an individual can meet the Product Design and CAD needs of today, while also anticipating the needs of, and impact on, future generations.

Professional registration gives employers, government and society confidence in the product design and CAD industries. In this way, professional registration offers safeguarding assurances.

Registration demonstrates that a Product Designer or CAD professional has reached a set standard of knowledge, understanding and occupational competence. It also demonstrates an individual's commitment to professional standards and to developing and enhancing through Continuing Professional Development (CPD).

People who gain further qualifications or experience over the course of their careers can be assessed for another registration title. People may develop their competence to enable them to move from Registered Computer-Aided Design Practitioner to Registered Computer-Aided Design Manager, from Registered Product Designer to Chartered Technological Product Designer, or to include Engineering Council and Society for the Environment qualifications.

Why register?

Benefits for individuals: recognition, career development, earning potential

Professional registration sets individual Product Designers and CAD professionals apart from those who are not registered. Gaining a professional title establishes a person's proven knowledge, understanding and competence to a set standard and demonstrates their commitment to developing and enhancing competence.

Registrants may use the post-nominal (letters after their name) relevant to their registration.

Registration increases a person's earning potential and establishes credibility with peers across the profession. The professional qualifications of RCP, RCADMan, RProdDes and CTPD are widely recognised.

The IED can help registrants find personal development opportunities through exposure to new developments, training or networking opportunities.

In addition, the criteria of the Standard for Registration: Product Design and Computer-Aided Design provide a useful framework for CPD, particularly for designers and CAD practitioners and managers aiming for a professional registration title. Achievement of registration can demonstrate a person's readiness for promotion or help them secure new roles or contracts.

Benefits for employers: assurance of quality

Employers of professionally registered product designers and CAD professionals can be assured that registered product designers and CAD professionals have:

- had their competence and credentials independently assessed
- had their credentials verified to a recognised standard and;
- made a commitment to their CPD.

Employing registered professionals can help mitigate against risks and liabilities, as registrants are governed by a Code of Professional Conduct.

Maintaining registration requires continued commitment to CPD. This means employers can be reassured that registered employees are developing and enhancing their competence and will be exposed to new developments in their profession.

Some employers find the framework of the Standard for Registration: Product Design and Computer-Aided Design a useful basis for their own organisational needs, such as to structure CPD. Others rely on achievement of registration to demonstrate an employee's readiness for promotion. In some cases, the awarding of contracts may require evidence that organisations employ professionally registered designers and CAD professionals.

International context

Product Designers and CAD professionals who have developed their professional competence in countries outside of the United Kingdom are welcome to join the IED's registers, subject to meeting the assessment criteria.

Table 1: Overview of professional registration titles

Title	Registered Computer-Aided Design Practitioner (RCP)	Registered Computer-Aided Design Manager (RCADMan)	Registered Product Designer (RProdDes)	Chartered Technological Product Designer (CTPD)
Post-nominal	RCP	RCADMan	RProdDes	CTPD
Descriptor	Applies proven techniques and procedures to develop practical CAD solutions.	Maintains and manages CAD systems and technology.	Undertakes product design through the application of standard and novel processes and practices.	Develops novel product designs, through innovation, creativity and change. Accountable for complex product designs with significant levels of novelty.
Key attributes:	1. Contribution to design and development through the use of CAD systems 2. Effective interpersonal communication skills 3. Commitment to professional values	1. Contribution to design and development through the management of CAD systems 2. Takes supervisory responsibility and technical responsibility for CAD systems 3. Contribution to project and financial planning and management together with some responsibility for developing other professional staff 4. Effective interpersonal communication skills 5. Commitment to professional values	1. The theoretical design knowledge to develop product designs using well proven creative and developmental techniques 2. Successful application of their knowledge to deliver designs using established processes and methods 3. Contribution to project and financial planning and management together with some responsibility for developing other professional staff 4. Effective interpersonal communication skills 5. Commitment to professional values	1. The theoretical design knowledge to develop novel product designs and develop new design processes 2. Successful application of the knowledge to design innovative products and take overall design responsibility for complex and novel designs 3. Responsibility for financial and planning aspects of projects, subprojects or tasks 4. Leading and developing other professional staff through management, mentoring or coaching 5. Effective interpersonal communication skills 6. Commitment to professional values

What is Product Design or CAD competence?

Competence is defined as a professional's ability to carry out product design or CAD tasks successfully and safely within their field of practice. This includes having the individual skills, knowledge and understanding, personal behaviour and approach, to be able to work collaboratively with others to achieve the intended outcomes.

Competence includes the ability to make professional judgments and an awareness of the limits of one's own ability and knowledge in order to seek assistance when required.

Each registration title requires demonstrations of competence in five broad areas:

A.   Product Design or CAD knowledge and understanding
B.   Product Design or CAD practice and processes
C.   Responsibility, management and leadership
D.   Communication and interpersonal skills
E.   Personal and professional commitment

What is professional commitment?

Registered Product Designers and CAD professionals are required to demonstrate a personal and professional commitment to society, to the environment and to their profession. As part of demonstrating overall competence, it is mandatory to show that they have adopted a set of values and conduct that maintains and enhances the reputation of the profession. This includes:

- Maintaining public and employee safety.
- Undertaking work in a way that protects the environment and contributes to sustainable development.
- Complying with codes of conduct, codes of practice and the legal and regulatory framework.
- Managing, applying and improving safe systems of work.
- Carrying out the CPD necessary to maintain and enhance competence in relation to duties and responsibilities.
- Exercising responsibilities in an ethical manner.
- Recognising inclusivity and diversity.
- Adopting a security-minded approach.
- Actively participating within the profession.

How to become professionally registered

Professional registration is open to all Product Designers and CAD professionals who are able to meet the competence standard:

What are the requirements for registration?

The Institution of Engineering Designers sets the Standard which needs to be met for RCP, RCADMan, RProdDes and CTPD.

The Institution will carry out an assessment of an applicant's competence and commitment and acts as the awarding body for the appropriate registration.

How are applicants assessed?

This document lists the requirements for all four professional titles. Once a person is confident that they meet all the criteria for a professional title, they should make an application for assessment. Applicants will need to submit formal documented evidence of relevant qualifications, experience or training and show how this relates to the required competences and commitment set out in this document.

The registration process has two stages: an assessment of written evidence followed by an interview. Applicants will be given feedback if the written evidence is not sufficient and they may be advised to re-write the evidence if this has failed to demonstrate that the criteria are likely to be met. This will avoid unnecessary time taken in conducting unfruitful interviews.

Meeting the requirements for registration

Knowledge and skills form an essential part of competence. This provides the necessary foundation of underpinning creative and practical design capabilities. Knowledge and skills ensure that decisions are based on comprehension of product design practices and standards, rather than simply relying on instructions.

Formal education is one way of developing some of the necessary competence (see Recognised Qualifications), but it is not the only way: an Individual who does not have the recognised qualification may also be registered via an individual assessment process, usually through a Portfolio Assessment process which is designed to take account of a shortfall in educational achievement.

Recognised qualifications

For applicants who have achieved the required learning outcomes through recognised qualifications. Qualifications which provide the required level of knowledge and understanding are:

- RCP: an appropriate apprenticeship, level 3 qualification or equivalent qualification in Engineering, Product Design or CAD.
- RCADMan: an appropriate Bachelors degree or equivalent qualification in Engineering, Product Design or CAD.
- RProdDes: an accredited Bachelors degree or equivalent.
- CTPD: an accredited integrated Masters degree or a combination of accredited Bachelors and appropriate Masters degrees or equivalent.

Individual assessment

Applicants who do not hold the recognised qualifications for the grade applied for will undergo an individual assessment of their qualifications and any other relevant learning such as:

- formal academic programmes
- in-employment training
- experiential learning
- self-directed learning

Applicants may be asked to produce a portfolio of work to demonstrate their competence.

Professional Review Report document demonstrating competence and commitment

Applicants are required to produce a brief focused Professional Review document demonstrating how they meet the assessment criteria.

Applicants are then assessed against the competence standard for the grade applied for.

An expert panel, consisting of Registered Product Designers and CAD Practitioners/ Managers, will review an applicant's evidence against the requirements. This is followed by:

Professional Review Interview (PRI)

All professional applicants other than RCP applicants will be interviewed by a panel of appropriately registered professionals.

The panel will then make a recommendation on whether the applicant meets the requirements for their chosen registration category.

Professional registration

The applicant will achieve professional registration if:

- The interview panel recommends that the applicant has met the requirements and;
- The IED's Membership committee endorses the recommendation.

The applicant then becomes a registrant and may use the relevant post-nominal.

As a condition of continued registration, the individual commits to:

- Maintain their competence through CPD and continuing IED membership and;
- Adhere to the IED's Code of Professional Conduct.

If an applicant has been unsuccessful the IED will provide some guidance on what further learning and/or competence development would be beneficial to achieve registration.

Recognised qualifications

The recognised qualifications for each registration category are set out in Table 2. The learning outcomes for accredited degrees are set out in detail in the IED's publication Accreditation of Education Programmes for Product Design

Table 2: Recognised Qualifications for each Registration Category

Registered Computer-Aided Design Practitioner (RCP) One of the following:	Registered Computer-Aided Design Manager (RCADMan) One of the following:	Registered Product Designer (RProdDes) One of the following:	Chartered Technological Product Designer (CTPD) One of the following:
• Successful completion of an appropriate apprenticeship or work-based learning programme • An appropriate qualification in CAD at level 3 (or above) in the National Qualifications Framework for England and Northern Ireland • An equivalent CAD qualification in a relevant national or international qualifications framework.	• An appropriate Bachelors degree with honours in CAD (level 6) • A Foundation Degree in CAD, plus appropriate further learning to Bachelors degree level • An equivalent CAD qualification in a relevant national or international qualifications framework.	• An accredited Bachelors degree with honours in Product Design (level 6) • A Foundation Degree in Product Design, plus appropriate further learning to Bachelors degree level • Equivalent qualifications in Product Design approved at an equivalent level in a relevant national or international qualifications framework.	• An accredited Bachelors degree with honours in Product Design, plus either an appropriate Product Design Masters degree accredited by the IED, or appropriate further learning to Masters level (Level 7) • An accredited integrated Masters degree in Product Design (level 7) • An accredited Bachelors degree with honours in Product Design started before September 1999 • Equivalent qualifications in Product Design approved at an equivalent level in a relevant national or international qualifications framework.

The IED maintains a publicly accessible recognised course database, which is available at: https://www.ied.org.uk/training-qualifications/
Note that this lists also include the courses that the IED accredits for Engineering Council qualifications.

Individual assessment process

Many potential registrants have not had formal education or training to the required level but are able to demonstrate they have acquired the necessary underpinning knowledge through substantial work experience. Applicants who have acquired their underpinning knowledge and understanding through experiential learning or other qualifications can submit the relevant information to the IED for an initial assessment.

This process includes assessment of the applicant's prior learning and underpinning knowledge needed to successfully perform their role. Applicants should submit information covering their education, career history and training record. It may also be helpful for applicants to include evidence of employer recognition of their competences and relevant skills.

If the IED considers, after this initial assessment, that it needs additional evidence of knowledge and understanding it will advise the applicant on the nature and extent of this. An applicant can demonstrate underpinning knowledge in a number of ways, such as:

- Successfully completing further qualifications, either in whole or in part.
- Providing a criteria-focused portfolio record of completed work based on their experience and learning.
- A combination of these as agreed by the Membership Committee.

The Membership Committee will identify the size requirements and focus of the portfolio, which is likely to be a maximum of around ten pages.

Applicants who are required to complete a portfolio will be given an extended interview, the first part of which will concentrate on the portfolio submission.

Preparing for registration

Designers seeking registration should review the competence and commitment statements and use the examples to help them identify where they already have an appropriate level of competence, as well as what evidence they can present to demonstrate this. They should also identify areas where they currently lack the appropriate competence, in order to formulate plans to develop to the required level.

This document also includes some examples of the kind of evidence which would contribute to demonstrating competence and commitment to the required Standard. However, the list of examples is only for guidance: it is not exhaustive, and the examples are not requirements for achieving professional registration.

For all categories, those seeking registration after completing their early career training should present a detailed record of their professional development, responsibilities and experience. To enable applicants to provide the best evidence for the Professional Review Interview, this record should be verified by supervisors or mentors.

Professional review: assessing competence and commitment

To become professionally registered, applicants must have their competence and commitment assessed through a Professional Review, overseen by the IED. This peer review process is carried out by registrants who are competent and trained to carry out this kind of assessment.

Applicants are assessed against the Standard listed in this document. There is no prescribed time period or minimum age requirement for the development of competence and commitment. The length of time it takes depends on many factors such as a person's prior qualifications or experience, their job role, as well as personal circumstances such as career breaks or part time working.

Scrutiny of qualifications

The first stage of the registration process is an assessment of the documented evidence which the applicant has submitted. The IED will specify the requirements for this submission. The IED will examine the examples of evidence and assess how they meet the competence requirements.

Applicants will need to submit evidence in support of their application such as:

- Educational record and qualifications
- Professional qualifications awarded by other authorities
- Structured or other professional development
- Areas of responsibility, management and leadership
- Evidence of effective interpersonal skills
- A plan for future professional development

Professional review

After the submitted evidence has been reviewed, the IED will decide whether the applicant is ready to proceed to Professional Review. The IED will be able to advise applicants how to best present their evidence of training and experience. The Professional Review Report is a document that is written by the applicant to demonstrate that the competence criteria have been met. Each criterion should be noted against each appropriate section of the document (eg A1, A2, A3, B1, etc). If there are shortfalls in evidence, the IED will usually be able to suggest ways in which the applicant can address them. This may involve further learning, training or additional experience. Once the submitted evidence has been accepted, the next stage is a Professional Review Interview (PRI).

When the Professional Review Interview has been completed, the peer reviewers will make a recommendation to the IED. The IED will then make a decision on whether the applicant has demonstrated that they meet the required standard. A positive decision will result in appropriate registration of the applicant. Where the applicant has been unsuccessful the IED will provide feedback to help the applicant overcome any shortfalls in competence.

Retention of the title requires:

- Continued membership of the IED
- Payment of an annual fee; and
- Undertaking and recording Continuing Professional Development (CPD).

The Registered Computer-Aided Design Practitioner (RCP) Standard

Registered Computer-Aided Design Practitioners apply proven techniques and procedures to develop practical CAD solutions

Registered CAD Practitioners shall demonstrate:

- CAD knowledge and understanding to apply technical and practical skills.
- Evidence of their contribution to the design, development or manufacture of products, equipment, processes or services.
- Effective interpersonal communication skills.
- The ability to operate safely and securely.
- Commitment to professional values.

A Registered Computer-Aided Design Practitioner will be able to demonstrate their competence in all of the areas listed, but the depth and extent of their experience and competence will vary with the context, nature and requirements of their role. They will demonstrate a level of competence and commitment in each area, at a level which is consistent with their specific role. It is to be expected that they will have a higher level of competence in some areas than others and their role may provide limited experience in certain areas. However, they need to demonstrate an understanding of, and familiarity with, the key aspects of competence in areas of limited experience as a minimum requirement while demonstrating higher levels of competence in areas critical to their role. Overall, they will demonstrate an appropriate balance of competence to perform their role effectively at Registered CAD Practitioner level.

The examples of evidence are intended as guidance to help identify activities that might demonstrate the required competence and commitment for registration. They are intended as examples only as the most appropriate evidence will vary with each individual role. The list is not exhaustive and other types of evidence might be valid. There is no requirement to provide multiple examples of evidence for each area of competence, but examples from two or three projects or tasks would be useful.

Competence		Examples of evidence
A. CAD Knowledge and understanding **Registered Computer-Aided Design Practitioners shall possess CAD knowledge and understanding.** This competence is about having and maintaining knowledge of CAD systems, technology, standards and practices.	**The applicant shall demonstrate that they:** **1.** Know ways that CAD drawings and/or models are constructed **2.** Know appropriate standards for CAD drawings and/or models	• Descriptions of how CAD tasks are carried out. • Descriptions of the standards that are used in CAD tasks
B. CAD Practice **Registered Computer-Aided Design Practitioners shall use knowledge and understanding to contribute to engineering and/or product design.** This competence is about the ability to apply knowledge effectively and efficiently to tasks which are undertaken in the applicant's role.	**The applicant shall demonstrate that they:** **1.** Have used CAD knowledge to produce appropriate drawings and/or models **2.** Have used appropriate CAD standards in the production of drawings and/or models **3.** Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact.	• Drawings, models and/or systems they have produced and explanations of how they produced them and the standards that they have used to produce them • Evidence that resources have been used effectively and that factors have been considered
C. Responsibility, management and leadership **Registered Computer-Aided Design Practitioners shall accept and exercise personal responsibility.** This competence is about the ability to plan and manage the applicant's own work effectively and efficiently, and to maintain, consider and identify quality improvements.	**The applicant shall demonstrate that they:** **1.** Work reliably and effectively without close supervision, to the appropriate codes of practice **2.** Accept responsibility for the work of themselves or others **3.** Accept, allocate or supervise tasks	• Ensuring that the scope of a task is clear before accepting it • Querying any aspect of a task which is not clear and/or providing an explanation if a query is raised by others • Learning from their experience and/or providing constructive feedback when supervising or working with others

Competence		Examples of evidence
D. Communication and interpersonal skills **Registered Computer-Aided Design Practitioners shall use effective communication and interpersonal skills.** This is the ability to work with others constructively, to explain ideas and proposals clearly and to discuss issues objectively and constructively.	**The applicant shall demonstrate that they:** **1.** Communicate effectively with others, at all levels, in English and with appropriate visual language **2.** Work effectively with colleagues, clients, suppliers or the public **3.** Demonstrate personal and social skills and awareness of diversity and inclusion issues	• Contributing to meetings and discussions • Preparing communications, CAD documents and reports • Contributing constructively as part of a team • Being confident and flexible in dealing with new and changing interpersonal situations
E. Personal and professional commitment **Registered Computer-Aided Design Practitioners shall demonstrate commitment to an appropriate code of professional conduct, recognising obligations to society, the profession and the environment.** This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. A Registered CAD Practitioner should set a professional standard and example to others.	**This shall include the ability to:** **1.** Understand and comply with relevant codes of conduct **2.** Understand the safety and security implications of their role and apply safe and secure systems of work **3.** Understand the principles of sustainable development and apply them in their work **4.** Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in CAD **5.** Understand the ethical issues that may arise and carrying out responsibilities in an ethical manner	• Demonstrating compliance with the IED and company Codes of Professional Conduct • Working within legislative and regulatory frameworks • Giving examples of application of safe systems. • Identifying actions that can and have been taken to improve sustainability • Planning, recording and reflecting on CPD activities, planned and unplanned • Giving examples of where ethical issues have been or may be encountered

The Registered Computer-Aided Design Manager (RCADMan) Standard

Registered Computer-Aided Design Managers maintain and manage CAD systems and technology

Registered Computer-Aided Design Managers shall demonstrate:

- Contribution to design and development through the management of CAD systems.
- Supervisory responsibility and technical responsibility for CAD systems.
- Effective interpersonal communication skills.
- The ability to operate safely and securely.
- Commitment to professional values.

A Registered Computer-Aided Design Manager will be able to demonstrate their competence in all of the areas listed, but the depth and extent of their experience and competence will vary with the context, nature and requirements of their role. They will demonstrate a level of competence and commitment in each area, at a level which is consistent with their specific role. It is to be expected that they will have a higher level of competence in some areas than others and their role may provide limited experience in certain areas. However, they need to demonstrate an understanding of, and familiarity with, the key aspects of competence in areas of limited experience as a minimum requirement while demonstrating higher levels of competence in areas critical to their role. Overall, they will demonstrate an appropriate balance of competence to perform their role effectively at Registered CAD Manager level.

The examples of evidence are intended as guidance to help identify activities that might demonstrate the required competence and commitment for registration. They are intended as examples only as the most appropriate evidence will vary with each individual role. The list is not exhaustive and other types of evidence might be valid. There is no requirement to provide multiple examples of evidence for each area of competence, but examples from two or three projects or tasks would be useful.

Competence		Examples of evidence
A. CAD systems knowledge and understanding **Registered Computer-Aided Design Managers shall possess knowledge and understanding of CAD management and systems.** This competence is about having, applying and maintaining knowledge of CAD management systems, and standards.	**The applicant shall demonstrate that they:** **1.** Have knowledge of management of CAD drawings, models and systems are managed **2.** Have knowledge of appropriate standards applied to management of CAD systems	• Descriptions of how CAD drawings, models and systems are managed • Descriptions of the standards that are used in management of CAD drawings, models and systems • Applying newly gained knowledge successfully in a task or project • Reviewing current procedures and processes and recommended improvements or changes to reflect best practice •
B. CAD management practice **Registered Computer-Aided Design Managers shall use knowledge and understanding to contribute to CAD & design management.** This competence is about the ability to apply knowledge effectively and efficiently to tasks which are undertaken in the applicant's role.	**The applicant shall demonstrate that they:** **1.** Have used knowledge of CAD management in practice **2.** Have used appropriate standards in the management of CAD systems **3.** Implement design solutions for equipment or processes and contribute to their evaluation **4.** Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact.	• Examples of systems they have managed, explaining how they manage them and the standards that they have used in their management • Examples of appropriate standards they have used in the management of CAD drawings, models and systems • Examples of appropriate equipment or processes they have implemented considering multiple factors (including cyber security) • Examples of how they have used models and drawings to manage design Intent

Competence		Examples of evidence
C. Responsibility, management and leadership **Registered Computer-Aided Design Managers shall accept and exercise personal responsibility.** This competence is about the ability to plan and manage the applicant's own work effectively and efficiently, and to maintain, consider and identify quality improvements.	**The applicant shall demonstrate that they:** **1.** Plan the work and resources needed to enable effective implementation of engineering or Product Design projects **2.** Manage (organise, direct and control), programme or schedule, budget and resource elements of CAD System Management **3.** Manage teams, or the input of others, into own work and assist others to meet changing technical and management needs	• Ensuring that the scope of a task is clear before accepting it • Querying any aspect of a task which is not clear and/or providing an explanation if a query is raised by others • Learning from their experience and/or providing constructive feedback when supervising or working with others • Leading and supporting team and individual development
D. Communication and interpersonal skills **Registered Computer-Aided Design Managers shall use effective communication and interpersonal skills.** This is the ability to work with others constructively, to explain ideas and proposals clearly and to discuss issues objectively and constructively.	**The applicant shall demonstrate that they:** **1.** Communicate effectively with others, at all levels, in English and with appropriate visual languages **2.** Work effectively with colleagues, clients, suppliers or the public **3.** Demonstrate personal and social skills and awareness of diversity and inclusion issues	• Contributing to meetings and discussions • Preparing communications, CAD documents and reports • Contributing constructively as part of a team • Being confident and flexible in dealing with new and changing interpersonal situations

Competence		Examples of evidence
E. Personal and professional commitment **Registered Computer-Aided Design Managers shall demonstrate commitment to an appropriate code of professional conduct, recognising obligations to society, the profession and the environment.** This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. A Registered Computer-Aided Design Manager should set a professional standard and example to others.	**This shall include the ability to:** **1.** Understand and comply with relevant codes of conduct **2.** Understand the safety and security implications of their role and apply safe and secure systems of work (including cyber-security) **3.** Understand the principles of sustainable development and apply them in their work **4.** Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence with CAD systems and their management **5.** Understand the ethical issues that may arise and carrying out responsibilities in an ethical manner	• Demonstrating compliance with the IED and company Codes of Professional Conduct • Working within legislative and regulatory frameworks • Giving examples of application of safe systems. • Identifying actions that can and have been taken to improve sustainability • Planning, recording and reflecting on CPD activities, planned and unplanned • Giving examples of where ethical issues have been or may be encountered

The Registered Product Designer (RProdDes) Standard

Registered Product Designers undertake product design through the application of standard and novel processes and practices

Registered Product Designers shall demonstrate:

- The theoretical design knowledge to develop product designs using well proven creative and developmental techniques.
- Successful application of their knowledge to deliver designs using established processes and methods.
- Contribution to project and financial planning and management together with some responsibility for developing other professional staff.
- Effective interpersonal communication skills.
- The ability to specify and operate to safe and secure systems of work and to demonstrate appropriate consideration of the principles of sustainability.
- Commitment to professional values.

A Registered Product Designer will be able to demonstrate their competence in all of the areas listed, but the depth and extent of their experience and competence will vary with the nature and requirements of their role. They will demonstrate a level of competence and commitment in each area at a level which is consistent with their specific role. It is to be expected that they will have a higher level of competence in some areas than others and their role may provide limited experience in certain areas. However, they need to demonstrate an understanding of, and familiarity with, the key aspects of competence in all areas as a minimum requirement while demonstrating higher levels of competence in those areas which are critical to their role. Overall, they must demonstrate an appropriate balance of competences to perform their role effectively at Registered Product Designer level.

The examples of evidence are intended as guidance to help identify activities that might demonstrate the required competence and commitment for Registered Product Designer registration. They are intended as examples only as the most appropriate evidence will vary with each individual role. The list is not exhaustive and other types of evidence might be valid. There is no requirement to provide multiple examples of evidence for each area of competence, but examples from two or three projects or tasks would be useful.

Competence		Examples of evidence
A. Product design knowledge and understanding **Registered Product Designers shall use a combination of general and specialist product design knowledge and understanding to apply existing and emerging methods.** This competence is about having, applying and maintaining knowledge of product design principles, standards and practices.	**The applicant shall demonstrate that they:** **1.** Have maintained and extended a sound theoretical approach to the application of product design principles in practice **2.** Use a sound evidence-based approach to problem-solving and contribute to continuous improvement	• Examples of own work showing effective incorporation of product design principles (methods, function, sustainability) • Examples demonstrating design judgement and research • Examples showing creativity, usability and aesthetics. • Demonstration of the use of correct standards and effective systems • Demonstration of incorporation of tangible product improvements
B. Product design practice **Registered Product Designers shall apply appropriate practical methods in the design of products.** This competence is about the ability to identify appropriate methods and approaches to use to undertake product design tasks.	**The applicant shall demonstrate that they:** **1.** Identify and select techniques, procedures and methods to undertake product design tasks **2.** Contribute to product design solutions **3.** Implement product design solutions and contribute to their evaluation **4.** Consider multiple factors when implementing product design solutions (including cyber security)	• Design specifications and briefs • Establishing product requirements considering multiple factors • Examples of product design projects that they have carried out individually or as part of a design team • Critical evaluation of their own and others' product design work • Carrying out product tests and validations • Identifying product improvements • Modifications of own and others' design work

Competence		Examples of evidence
C. Responsibility, management and leadership **Registered Product Designers shall provide product design management.** This competence is about the ability to plan the applicant's own work and manage or specify the work of others effectively, efficiently and to provide functional leadership, and to maintain, consider and identify quality improvements.	**The applicant shall demonstrate that they:** **1.** Plan the work and resources needed to enable effective implementation of product design tasks and projects **2.** Manage (organise, direct and control), programme or schedule, budget and resource elements of product design tasks or projects **3.** Manage teams, or the input of others, and assist others to meet changing needs **4.** Take an active role in continuous quality improvement	• Project planning schedules including resources and facilities • Managing workloads and roles within a design project team • Working with internal and external stakeholders • Carrying out risk assessment procedures • Application and improvement of quality standards and management • Evaluation of own and others' performance within a design team
D. Communication and interpersonal skills **Registered Product Designers shall demonstrate effective communication and interpersonal skills.** This is the ability to work with others constructively, to present and explain ideas, designs and proposals clearly and to discuss issues objectively and constructively.	**The applicant shall demonstrate that they:** **1.** Communicate effectively with others, at all levels, in English and using appropriate graphical and modelling processes **2.** Clearly present and discuss proposals, justifications and conclusions **3.** Demonstrate personal and social skills and awareness of diversity and inclusion issues	• Contributing to, chairing and recording meetings and discussions • Preparing communications, documents and reports on technical matters • Exchanging information and providing advice to designers and other colleagues • Knowing and managing own emotions, strengths and weaknesses • Being confident and flexible in dealing with new and changing interpersonal situations • Identifying, agreeing and working towards collective goals • Being supportive of the needs and concerns of others, especially where this relates to diversity and inclusion

Competence		Examples of evidence
E. Personal and professional commitment **Registered Product Designers shall demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.** This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. A Registered Product Designer should set a professional standard and example to others.	**The applicant shall demonstrate that they:** **1.** Understand and comply with relevant codes of conduct **2.** Understand the safety and security implications of their role and manage, apply and improve safe and secure systems of work (including cyber security) **3.** Understand the principles of sustainable development and apply them in their work **4.** Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance product design competence **5.** Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner	• Demonstrating compliance with the IED's Code of Professional Conduct • Identifying and taking responsibility for health, safety and welfare issues • Operating and acting responsibly, taking account of the need to progress environmental, social and economic outcomes simultaneously • Understanding and encouraging stakeholder involvement in sustainable development • Using resources efficiently and effectively • Carrying out recording and evaluating planned and unplanned CPD activities • Assisting others with their CPD • Giving a personal example of where ethical principles have been applied or upheld

The Chartered Technological Product Designer (CTPD) Standard

Chartered Technological Product Designers develop novel product designs, through innovation, creativity and change. They are accountable for complex product designs with significant levels of novelty

Chartered Technological Product Designers shall demonstrate:

- The theoretical design knowledge to develop novel product designs and develop new design processes.
- Successful application of the knowledge to design innovative products and take overall design responsibility for complex and novel designs.
- Responsibility for financial and planning aspects of projects, subprojects or tasks.
- Leading and developing other professional staff through management, mentoring or coaching.
- Effective interpersonal communication skills.
- The ability to specify and operate to safe and secure systems of work and to demonstrate appropriate operation of the principles of sustainability.
- Commitment to professional values.

A Chartered Technological Designer will be able to demonstrate their competence in all of the areas listed, but the depth and extent of their experience and competence will vary with the nature and requirements of their role. They will demonstrate a level of competence and commitment in each area, at a level which is consistent with their specific role. It is to be expected that they will have a higher level of competence in some areas than others and their role may provide limited experience in certain areas. However, they need to demonstrate an understanding of, and familiarity with, the key aspects of competence in all areas as a minimum requirement while demonstrating higher levels of competence in those areas which are critical to their role. Overall, they will demonstrate an appropriate balance of competences to perform their role effectively at Chartered Technological Product Designer level.

The examples of evidence are intended as guidance to help identify activities that might demonstrate the required competence and commitment for Chartered Technological Product Designer registration. They are intended as examples only as the most appropriate evidence will vary with each individual role. The list is not exhaustive and other types of evidence might be valid. There is no requirement to provide multiple examples of evidence for each area of competence, but examples from two or three projects or tasks would be useful.

Competence		Examples of evidence
A. Product design knowledge and understanding **Chartered Technological Product Designers shall use a combination of general and specialist product design knowledge and understanding to design and evaluate complex product designs.** This competence is about the ability to apply, evaluate and develop product design methods and principles to produce complex and/or novel designs. This may involve the integration of a range of processes and consideration of multiple constraints and other factors.	**The applicant shall demonstrate that they:** **1.** Have maintained and extended a sound theoretical approach to enable them to develop their particular role **2.** Are developing designs to meet unusual or challenging problems, using their knowledge and understanding and/or dealing with complex issues or situations with significant levels of risk	• Examples of own work showing effective incorporation, evaluation and development of product design principles (methods, function, sustainability) in novel situations • Examples demonstrating effective design judgement and use of relevant research, either their own or by others • Examples showing evaluation of complex creativity, usability and aesthetics criteria • Demonstration of the use and development of correct standards and effective systems • Learning and developing new design theories and techniques in the workplace • Carrying out design research and development activities • Developing solutions involving complex or multidisciplinary design areas

Competence		Examples of evidence
B. Product design practice **Chartered Technological Designers shall demonstrate that they have been responsible for designing and developing complex product designs.** This competence is about the ability to apply, develop and evaluate design methods and principles effectively and efficiently, and about demonstrating senior product design responsibility.	**The applicant shall demonstrate that they:** **1.** Take an active role in the identification and definition of project and design requirements, problems and opportunities **2.** Can identify the appropriate investigations and research needed to undertake the design, development and analysis required to complete a product design task and conduct these activities effectively **3.** Can implement and take responsibility for product design solutions and tasks and evaluate the effectiveness of product designs **4.** Consider multiple factors when taking responsibility for product design solutions (including cyber security)	• Identifying and designing products or improvements to products for which they have taken responsibility • Preparing product design specifications, taking account of multiple requirements and factors • Reviewing specifications and tenders to identify issues and potential improvements • Implementing new and emerging design methods and processes • Identifying and agreeing appropriate design and research methodologies • Identifying and carrying out physical tests or trials and analysing and evaluating the results

Competence		Examples of evidence
C. Responsibility, management and leadership **Chartered Technological Product Designers shall demonstrate design and commercial leadership.** This competence is about the ability to manage the applicant's own work and to manage and provide effective and efficient design and commercial project leadership, and to maintain, consider and identify quality improvements.	**The applicant shall demonstrate that they:** **1.** Plan the work and resources needed to enable effective implementation of a significant product design task or project **2.** Manage (organise, direct and control), programme or schedule, budget and resource elements of a significant product design task or project **3.** Lead teams or specialist groups and assist others to meet changing design and managerial needs **4.** Bring about continuous quality improvement and promote best practice	• Preparing budgets and associated work programmes for projects or tasks • Systematically reviewing the factors affecting the project implementation • Carrying out a task or project risk assessment and identifying mitigation measures • Leading on preparing and agreeing implementation plans and method statements • Negotiating, agreeing and evaluating arrangements with multiple stakeholders • Establishing, maintaining and developing appropriate quality standards • Leading, supporting and evaluating team and individual development • Leading a University teaching team or department • Developing and delivering a teaching module at Masters level, or leading a University research Programme

Competence		Examples of evidence
D. Communication and interpersonal skills **Chartered Technological Product Designers shall demonstrate effective communication and interpersonal skills.** This is the ability to work with others constructively, to present and explain ideas, designs and proposals clearly and to discuss issues objectively and constructively.	**The applicant shall demonstrate that they:** **1.** Communicate effectively with others, at all levels, in English and using appropriate graphical and modelling processes **2.** Clearly present and discuss proposals, product designs, justifications and conclusions **3.** Demonstrate personal and social skills and awareness of diversity and inclusion issues	• Preparing reports, drawings, specifications and other documentation on complex matters • Leading, chairing, contributing to and recording meetings and discussions • Engaging or interacting with professional networks • Contributing to academic papers or articles as an author • Identifying, agreeing and leading work towards collective goals • Being confident and flexible in dealing with new and changing interpersonal situations • Creating, maintaining, supporting and enhancing productive working relationships, and resolving conflicts

Competence		Examples of evidence
E. Personal and professional commitment **Chartered Technological Product Designers shall demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.** This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. A Chartered Technological Product Designer should set a professional standard and example to others.	**The applicant shall demonstrate that they:** **1.** Understand and comply with relevant codes of conduct **2.** Understand the safety and security implications of their role and manage, apply and improve safe and secure systems of work (including cyber security) **3.** Understand the principles of sustainable development and apply them in their work **4.** Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice **5.** Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner	• Demonstrating compliance with the IED's Code of Professional Conduct • Leading work within relevant legislation and regulatory frameworks, including social and employment legislation • Identifying and taking responsibility for own obligations and ensuring that others assume similar responsibility for health, safety, security and welfare issues • Developing, implementing, managing, evaluating and improving appropriate risk management systems • Taking responsibility for implementing and developing environmental, social and economic sustainability • Carrying out, maintaining and evaluating planned and unplanned CPD activities • Giving examples of where ethical principles have been applied

Comparison table for RCP, RCADMan, RProdDes and CTPD Standards

Registered Computer-Aided Design Practitioner (RCP)	Registered Computer-Aided Design Manager (RCADMan)	Registered Product Designer (RProdDes)	Chartered Technological Product Designer (CTPD)
Competence and Commitment standard for Registered Computer-Aided Design Practitioner (RCP)	Competence and Commitment standard for Registered Computer-Aided Design Manager (RCADMan)	Competence and Commitment standard for Registered Product Designer (RProdDes)	Competence and Commitment standard for Chartered Technological Product Designer (CTPD)
A. CAD knowledge and understanding	A. CAD Systems knowledge and understanding	A. Product design knowledge and understanding	A. Product design knowledge and understanding
Registered Computer-Aided Design Practitioners shall possess CAD knowledge and understanding. This competence is about having and maintaining knowledge of systems, standards and CAD practices.	Registered Computer-Aided Design Managers shall possess knowledge and understanding of CAD management and systems. This competence is about having and maintaining knowledge of CAD systems, technology, standards and practices.	Registered Product Designers shall use a combination of general and specialist product design knowledge and understanding to apply existing and emerging methods. This competence is about having, applying and maintaining knowledge of product design principles, standards and practices.	Chartered Technological Product Designers shall use a combination of general and specialist product design knowledge and understanding to design and evaluate complex product designs. This competence is about the ability to apply, evaluate and develop product design methods and principles to produce complex and/or novel designs. This may involve the integration of a range of processes and consideration of multiple constraints and other factors.

Registered Computer-Aided Design Practitioner (RCP)	Registered Computer-Aided Design Manager (RCADMan)	Registered Product Designer (RProdDes)	Chartered Technological Product Designer (CTPD)
A. CAD knowledge and understanding	**A. CAD Systems knowledge and understanding**	**A. Product design knowledge and understanding**	**A. Product design knowledge and understanding**
The applicant shall demonstrate that they:	**The applicant shall demonstrate that they:**	**The applicant shall demonstrate that they:**	**The applicant shall demonstrate that they:**
1. Know ways that CAD drawings and/or models are constructed. **2.** Know appropriate standards for CAD drawings and/or models	**1.** Have knowledge of management of CAD drawings, models and systems are managed **2.** Have knowledge of appropriate standards applied to management of for CAD systems	**1.** Have maintained and extended a sound theoretical approach to the application of product design principles in practice **2.** Use a sound evidence-based approach to problem-solving and contribute to continuous improvement	**1.** Have maintained and extended a sound theoretical approach to enable them to develop their particular role **2.** Are developing designs to meet unusual or challenging problems, using their knowledge and understanding and/or dealing with complex issues or situations with significant levels of risk
B. CAD practice	**B. CAD management practice**	**B. Product design practice**	**B. Product design practice**
Registered Computer-Aided Design Practitioners shall use knowledge and understanding to contribute to engineering and/or product design. This competence is about the ability to apply knowledge effectively and efficiently to tasks which are undertaken in the applicant's role.	**Registered Computer-Aided Design Managers shall use knowledge and understanding to contribute to CAD & design management.** This competence is about the ability to apply knowledge effectively and efficiently to tasks which are undertaken in the applicant's role.	**Registered Product Designers shall apply appropriate practical methods in the design of products.** This competence is about the ability to identify appropriate methods and approaches to use to undertake product design tasks.	**Chartered Technological Designers shall demonstrate that they have been responsible for designing and developing complex product designs.** This competence is about the ability to apply, develop and evaluate design methods and principles effectively and efficiently, and about demonstrating senior product design responsibility.

Registered Computer-Aided Design Practitioner (RCP)	Registered Computer-Aided Design Manager (RCADMan)	Registered Product Designer (RProdDes)	Chartered Technological Product Designer (CTPD)
B. CAD practice	B. CAD management practice	B. Product design practice	B. Product design practice
The applicant shall demonstrate that they:	The applicant shall demonstrate that they:	The applicant shall demonstrate that they:	The applicant shall demonstrate that they:
1. Have used CAD knowledge to produce appropriate drawings and/or models 2. Have used appropriate CAD standards in the production of drawings and/or models 3. Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact.	1. Have used knowledge of CAD management in practice 2. Have used appropriate standards in the management of CAD systems 3. Implement design solutions for equipment or processes and contribute to their evaluation 4. Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact.	1. Identify and select techniques, procedures and methods to undertake product design tasks 2. Contribute to product design solutions 3. Implement product design solutions and contribute to their evaluation 4. Consider multiple factors when implementing product design solutions (including cyber security)	1. Take an active role in the identification and definition of project and design requirements, problems and opportunities 2. Can identify the appropriate investigations and research needed to undertake the design, development and analysis required to complete a product design task and conduct these activities effectively 3. Can implement and take responsibility for product design solutions and tasks and evaluate the effectiveness of product designs 4. Consider multiple factors when taking responsibility for product design solutions (including cyber security)

Registered Computer-Aided Design Practitioner (RCP)	Registered Computer-Aided Design Manager (RCADMan)	Registered Product Designer (RProdDes)	Chartered Technological Product Designer (CTPD)
C. Responsibility, management and leadership	**C. Responsibility, management and leadership**	**C. Responsibility, management and leadership**	**C. Responsibility, management and leadership**
Registered Computer-Aided Design Practitioners shall accept and exercise personal responsibility. This competence is about the ability to plan and manage the applicant's own work effectively and efficiently, and to maintain, consider and identify quality improvements.	**Registered Computer-Aided Design Managers shall accept and exercise personal responsibility.** This competence is about the ability to plan and manage the applicant's own work effectively and efficiently, and to maintain, consider and identify quality improvements.	**Registered Product Designers shall provide product design management.** This competence is about the ability to plan the applicant's own work and manage or specify the work of others effectively, efficiently and to provide functional leadership, and to maintain, consider and identify quality improvements.	**Chartered Technological Product Designers shall demonstrate design and commercial leadership.** This competence is about the ability to manage the applicant's own work and to manage and provide effective and efficient design and commercial project leadership, and to maintain, consider and identify quality improvements.

Registered Computer-Aided Design Practitioner (RCP)	Registered Computer-Aided Design Manager (RCADMan)	Registered Product Designer (RProdDes)	Chartered Technological Product Designer (CTPD)
C. Responsibility, management and leadership	**C. Responsibility, management and leadership**	**C. Responsibility, management and leadership**	**C. Responsibility, management and leadership**
The applicant shall demonstrate that they:	**The applicant shall demonstrate that they:**	**The applicant shall demonstrate that they:**	**The applicant shall demonstrate that they:**
1. Work reliably and effectively without close supervision, to the appropriate codes of practice **2.** Accept responsibility for the work of themselves or others **3.** Accept, allocate or supervise tasks	**1.** Plan the work and resources needed to enable effective implementation of engineering or Product Design projects **2.** Manage (organise, direct and control), programme or schedule, budget and resource elements of CAD System Management **3.** Manage teams, or the input of others, into own work and assist others to meet changing technical and management needs	**1.** Plan the work and resources needed to enable effective implementation of product design tasks and projects **2.** Manage (organise, direct and control), programme or schedule, budget and resource elements of product design tasks or projects **3.** Manage teams, or the input of others, into own work and assist others to meet changing needs **4.** Take an active role in continuous quality improvement	**1.** Plan the work and resources needed to enable effective implementation of a significant product design task or project **2.** Manage (organise, direct and control), programme or schedule, budget and resource elements of a significant product design task or project **3.** Lead teams or specialist groups and assist others to meet changing design and managerial needs **4.** Bring about continuous quality improvement and promote best practice

Registered Computer-Aided Design Practitioner (RCP)	Registered Computer-Aided Design Manager (RCADMan)	Registered Product Designer (RProdDes)	Chartered Technological Product Designer (CTPD)
D. Communication and interpersonal skills	D. Communication and interpersonal skills	D. Communication and interpersonal skills	D. Communication and interpersonal skills
Registered Computer-Aided Design Practitioners shall use effective communication and interpersonal skills. This is the ability to work with others constructively, to explain ideas and proposals clearly and to discuss issues objectively and constructively.	**Registered Computer-Aided Design Managers shall use effective communication and interpersonal skills.** This is the ability to work with others constructively, to explain ideas and proposals clearly and to discuss issues objectively and constructively	**Registered Product Designers shall demonstrate effective communication and interpersonal skills.** This is the ability to work with others constructively, to present and explain ideas, designs and proposals clearly and to discuss issues objectively and constructively.	**Chartered Technological Product Designers shall demonstrate effective communication and interpersonal skills.** This is the ability to work with others constructively, to present and explain ideas, designs and proposals clearly and to discuss issues objectively and constructively.
The applicant shall demonstrate that they:	The applicant shall demonstrate that they:	The applicant shall demonstrate that they:	The applicant shall demonstrate that they:
1. Communicate effectively with others, at all levels, in English and with appropriate visual language **2.** Work effectively with colleagues, clients, suppliers or the public **3.** Demonstrate personal and social skills and awareness of diversity and inclusion issues.	**1.** Communicate effectively with others, at all levels, in English and with appropriate visual languages **2.** Work effectively with colleagues, clients, suppliers or the public **3.** Demonstrate personal and social skills and awareness of diversity and inclusion issues.	**1.** Communicate effectively with others, at all levels, in English and using appropriate graphical and modelling processes **2.** Clearly present and discuss proposals, justifications and conclusions **3.** Demonstrate personal and social skills and awareness of diversity and inclusion issues.	**1.** Communicate effectively with others, at all levels, in English and using appropriate graphical and modelling processes **2.** Clearly present and discuss proposals, product designs, justifications and conclusions **3.** Demonstrate personal and social skills and awareness of diversity and inclusion issues.

Registered Computer-Aided Design Practitioner (RCP)	Registered Computer-Aided Design Manager (RCADMan)	Registered Product Designer (RProdDes)	Chartered Technological Product Designer (CTPD)
E. Personal and professional commitment	E. Personal and professional commitment	E. Personal and professional commitment	E. Personal and professional commitment
Registered Computer-Aided Design Practitioners shall demonstrate commitment to an appropriate code of professional conduct, recognising obligations to society, the profession and the environment. This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. A Registered Computer-Aided Design Practitioner should set a professional standard and example to others.	**Registered Computer-Aided Design Managers shall demonstrate commitment to an appropriate code of professional conduct, recognising obligations to society, the profession and the environment.** This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. A Registered Computer-Aided Design Manager should set a professional standard and example to others.	**Registered Product Designers shall demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.** This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. A Registered Product Designer should set a professional standard and example to others.	**Chartered Technological Product Designers shall demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.** This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. A Chartered Technological Product Designer should set a professional standard and example to others.

Registered Computer-Aided Design Practitioner (RCP)	Registered Computer-Aided Design Manager (RCADMan)	Registered Product Designer (RProdDes)	Chartered Technological Product Designer (CTPD)
E. Personal and professional commitment	E. Personal and professional commitment	E. Personal and professional commitment	E. Personal and professional commitment
The applicant shall demonstrate that they:	The applicant shall demonstrate that they:	The applicant shall demonstrate that they:	The applicant shall demonstrate that they:
1. Understand and comply with relevant codes of conduct 2. Understand the safety and security implications of their role and apply safe and secure systems of work 3. Understand the principles of sustainable development and apply them in their work 4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in CAD 5. Understand the ethical issues that may arise and carrying out responsibilities in an ethical manner	1. Understand and comply with relevant codes of conduct 2. Understand the safety and security implications of their role and apply safe and secure systems of work (including cyber-security) 3. Understand the principles of sustainable development and apply them in their work 4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence with CAD systems and their management 5. Understand the ethical issues that may arise and carrying out responsibilities in an ethical manner	1. Understand and comply with relevant codes of conduct 2. Understand the safety and security implications of their role and manage, apply and improve safe and secure systems of work (including cyber security) 3. Understand the principles of sustainable development and apply them in their work 4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance product design competence 5. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner	1. Understand and comply with relevant codes of conduct 2. Understand the safety and security implications of their role and manage, apply and improve safe and secure systems of work (including cyber security) 3. Understand the principles of sustainable development and apply them in their work 4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice 5. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner

Continuing Professional Development

Continuing professional development (CPD) is essential for maintaining and enhancing the required competence and commitment, as well as for developing new competences. This obligation underpins the value of the professional titles of RCP, RCADMan, RProdDes and CTPD and enables society to have confidence in the CAD and Product Design professions.

CPD has several purposes:

- To assure continuing competence in a current job.
- To prepare for a different role.
- To follow a longer-term career development plan.
- To enhance professionalism in a wider context than a specific job role.

CPD Policy for IED Registrants

CAD and Product Design professionals should take all necessary steps to maintain and enhance their competence through CPD. In particular, they should:

- Take ownership of their learning and development needs and develop a plan to indicate how they might meet these, which may be in discussion with their employer.
- Carry out a variety of development activities, both in accordance with this plan and in response to other opportunities which might arise.
- Record their CPD activities.
- Reflect on what they have learned or achieved through their CPD activities and record these reflections.
- Evaluate their CPD activities against any objectives they have set and record this evaluation.
- Review their learning and development plan regularly, following reflection and assessment of future needs.
- Support the learning and development of others through activities such as mentoring and sharing professional expertise and knowledge.

At Professional Review, all applicants will need to demonstrate how they meet their CPD obligations and show that they understand that this requires an ongoing commitment.

Sampling registrants' CPD records

The IED undertakes annual random samples of professionally active registrants' CPD records and provide appropriate feedback.

Registrants who are not professionally active (e.g. retired or on a career break) may request exemption from a sample. The intention behind CPD sampling is not to police registrants, but to encourage a culture in which registrants will naturally engage in CPD and take ownership of their learning and development.

Recording evidence of CPD undertaken is a requirement of professional registration. Professionally active registrants who persistently do not respond to or engage with requests for CPD records will be removed from the professional register.

Principles to guide IED professionals – a summary

1 Honesty and integrity
IED professional registrants have a duty to uphold the highest standards of professional conduct including openness, fairness, honesty and integrity

2 Respect for life, law, the environment and public good
IED professional registrants have a duty to obey all applicable laws and regulations and give due weight to facts, published standards and guidance and the wider public interest.

3 Accuracy and rigour
IED professional registrants have a duty to acquire and use wisely the understanding, knowledge and skills needed to perform their role.

4 Leadership and communication
IED professional registrants have a duty to abide by and promote high standards of leadership and communication

5 Equality and inclusion
IED professional registrants have a duty to communicate commitment to equality and inclusion principles and practices

Glossary

Accredited / Accreditation	A process of peer review of a Higher Education programme in a specified location against published learning outcomes and/or **competences**, including a review of delivery, assessment and facilities. This usually involves a visit from a team of IED professionals. See also: **Approved / Approval.**
Approved / Approval	The process of peer reviewing a Higher Education or Further Education programme that an individual has taken, but which has not been formally accredited. In order to obtain approval for a programme that they have taken an individual normally submits the details of the programme to the IED who then undertake an individual review. See also: **Accredited / Accreditation**
BSi	British Standards Institute. BSi publishes documents such as BS7000, BS8888 and BS8887
CAD	Computer-Aided Design
CADD	Computer-Aided Design and Draughting
Chartered Engineer (CEng)	One of the **Engineering Council**'s professional titles that the **IED** is licenced to award. See www.engc.org.uk/ceng
Chartered Environmentalist (CEnv)	One of the **Society for the Environment'**s professional titles that the **IED** is licenced to award. See https://socenv.org.uk/
Chartered Technological Product Designer (CTPD)	One of the IED's professional titles awarded under its Royal Charter and available to individuals who meet the required standard of **competence** and **commitment**. See pages 28 - 33.
Code of Professional Conduct	One of the requirements of professional registration is demonstrating compliance with the IED's Code of Professional Conduct. See: https://www.ied.org.uk/governance/
Commitment	A set of values, rules of conduct, and obligations that maintain and enhance the reputation of the Product Design and CAD professions and the individual. Demonstrating both **competence** and commitment is part of the requirement to become **professionally registered** with the **IED.**
Competence	The ability to carry out appropriate tasks to an effective standard. Achieving competence requires the right level of underpinning knowledge, understanding and skill, as well as a professional attitude. Demonstrating both competence and **commitment** is part of the requirement to become **professionally registered** with the **IED.**
Complex, Complexity	Describes an issue or a problem that cannot be solved using algorithmic processes. Contrast with **complicated.**

Complicated	Describes an issue or a problem that, whilst it might contain a multiplicity of issues and processes, can nevertheless be solved using algorithmic processes. Contrast with **complex**.
CPD	**Continuing Professional Development.** The systematic acquisition of knowledge and skills, and the development of personal qualities, to maintain and enhance professional **competence** for current and future roles. All **IED registrants** have an obligation to carry out CPD and to support the learning of others. See page 42 and https://www.ied.org.uk/cpd-policy/
Documented Evidence	The written and other evidence of experience and qualifications which is submitted for **Professional Review** when applying for **professional registration.**
Drawing	A means of visual communication utilising marks on a two-dimensional medium or the simulation of this using computer technology. A formal drawing is the traditional way of defining the design intent. Drawings may be produced using traditional methods and processes or using CAD systems. Informal drawing processes may also be used by both CAD professionals and Product Designers.
Engineering Council	The UK regulatory body for the engineering profession. The Engineering Council sets and maintains internationally recognised standards of professional **competence** and ethics and holds the UK register of professional engineers and technicians.
Engineering Technician (EngTech)	One of the Engineering Council's professional titles that the IED is licenced to award. See www.engc.org.uk
Extended Professional Review Interview	A **professional review interview** for an applicant who has submitted a **portfolio**. The first part of the interview will consist of an assessment of the submitted **portfolio**. See also **Profession Review Interview**.
Fellow of the IED (FIED)	The IED's grade of membership for senior designers and CAD specialists. This grade is not formally linked to professional registration.
HASAW	**Health and Safety at Work**. Specifically, the 1974 Health and Safety at Work Act, the primary legislation covering occupational health and safety in the UK.

IED	The **Institution of Engineering Designers**. The IED is the premier membership body representing Engineering Designers, Product Designers and CAD professionals. It is the UK regulatory body for the CAD and Product Design professions and also holds licences from the **Engineering Council** and the **Society for the Environment** to register engineers and environmentalists respectively. The IED was founded in 1945 and gained its Royal Charter in 2012.
IEng	One of the **Engineering Council**'s professional titles that the **IED** is licenced to award. See www.engc.org.uk
Individual Assessment	The route to **professional registration** for individuals without recognised qualifications. See pages 12 and 15. The other way to achieve professional registration is through **recognised qualifications.**
ISO	The **International Organization for Standardization**. ISO publishes documents such as ISO 45001 the international standard for occupational health and safety and ISO 9000, the international quality standards on quality management and quality assurance.
May	In the context of the requirements set out in the Standard, 'may' indicates there is permission to do something.
Member of the IED (MIED)	The main grade of IED membership. This grade is not linked formally to professional registration.
Model	A three-dimensional representation of an existing or proposed design or a representation of something that is able to simulate or predict behaviour in some way. Models may be physical or based in computer software. Models may be produced and used by both CAD professionals and Product Designers.
Portfolio	A document submitted as requested by the Membership Committee by individual applicants who do not hold recognised qualifications. A portfolio is likely to be a maximum of ten pages and include a combination of drawings and text. The relevant criteria should be identified in each section of the document. A portfolio assessment will normally form the first part of an **extended professional review interview**.
Post-nominal	Letters placed after a person's name which indicate that the person holds a certain position, academic degree, professional accreditation, office or honour. Examples of CAD and product design post-nominals are **RCP, RCADMan, RProdDes** and **CTPD**.
Principles to guide IED professionals	These principles include honesty, integrity, respect for life, law, environment, public good, accuracy, rigour, leadership, communication, equality, inclusion, diversity. They are summarised on page 44.

Professional Development	The process by which an individual gains professional **competence**. It may take place through formal and informal learning, and workplace training and experience. This normally includes a period of initial professional development followed by career-long **continuing professional development (CPD)**.
Professional Registration	The process in which an individual is admitted to the **IED's** Register as a **Registered Computer-Aided Design Practitioner (RCP), Registered Computer-Aided Design Manager (RCADMan), Registered Product Designer** or **Chartered Technological Product Designer**. To achieve professional registration the individual must demonstrate, via a peer review process that they have met the **IED's** Standard of **commitment** and **competence**. Individuals who have been awarded a professional registration title may use the relevant **post-nominal**.
Professional Review	A peer assessment process to decide whether an individual has met the requirements for registration. Professional Review is a holistic assessment of the applicant's **competence** and **commitment** against the relevant sections of this document. See pages 12 and 16.
Professional Review Interview (PRI)	A peer assessment process to assess whether an individual has met the requirements for **professional registration**. It is a holistic assessment of the applicant's **competence** and **commitment** against the relevant sections of this document. The Professional Review Interview is conducted by suitably qualified **registrants**, who make a recommendation whether the applicant has demonstrated the necessary competencies to achieve **professional registration**. See pages 12 and 16.
Professional Review Report (PRR)	The document submitted by an applicant that outlines their competence and commitment as outlined in the relevant pages of this document. A PRR should reference the criteria in each appropriate section. See pages 12 and 16.
Recognised Qualifications	Qualifications that are recognised as delivering the appropriate learning outcomes to develop an individual's **underpinning knowledge, understanding and skill** for **professional registration**.
Registered Computer-Aided Design Manager (RCADMan)	One of the IED's professional titles awarded under its Royal Charter and available to individuals who meet the required standard of **competence** and **commitment**. See pages 20 - 23.
Registered Computer-Aided Design Practitioner (RCP)	One of the IED's professional titles awarded under its Royal Charter and available to individuals who meet the required standard of **competence** and **commitment**. See pages 17 - 19.

Registered Environmental Practitioner (REnvP)	One of the **Society for the Environment'**s professional titles that the **IED** is licenced to award. See https://socenv.org.uk/
Registered Product Designer (ProdDes)	One of the IED's professional titles awarded under its Royal Charter and available to individuals who meet the required standard of **competence** and **commitment**. See pages 24 - 27.
Registrant	An individual who holds a **professional registration** title such as **RCP**, **RCADMan**, **RProdDes** or **CTPD**.
Registration	See **Professional Registration**.
Royal Charter	A formal document issued by the monarch granting rights and powers to an individual or an organisation.
Shall	In the context of the requirements set out in the Standard, 'shall' indicates there is a requirement to do something (ie it is mandatory).
Should	In the context of the requirements set out in the Standard, 'should' indicates a recommendation to do something.
Student Member of the IED (StudIED)	The IED's grade of membership for those pursuing appropriate full-time courses in Engineering, Product Design and/or CAD.
Society for the Environment (SocEnv)	The Society for the Environment is the body responsible for the registration of environmental professionals. It is the custodian of the **Chartered Environmentalist (CEnv), Registered Environmental Practitioner (REnvP)** and **Registered Environmental Technician (REnvTech)** registers, and is the body tasked with championing and registering the expertise of environmental professionals. See https://socenv.org.uk/
Underpinning Knowledge, Understanding and Skills	The knowledge and understanding of the principles of product design and CAD theory and practice that are required to form the basis of product design and CAD **competence** at a professional level.