

**CCSID1** Plan project management frameworks for an industrial design project

**CCSID2** Identify organisational aims relevant to the industrial design project

**CCSID3** Identify technological and operational capabilities available to the industrial design project

**CCSID4** Carry out preliminary stakeholder behaviour research to inform industrial design strategy

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**CCSID5** Use scenario-based analysis techniques to document current interactions and anticipate future situations and behaviours

**CCSID6** Discover and prioritise detailed interaction experience targets

**CCSID7** Create propositions that connect market opportunity, investor goals and available capabilities

**CCSID8** create novel ideas for future interactions inspired by learning and goal setting activities

**CCSID9** Plan simulation methods appropriate to interaction behaviour testing needs

**CCSID10** Execute simulations using a range of appropriate techniques

**CCSID11** Refine design solutions based on on-going simulation feedback

**CCSID12** Produce clear, precise, actionable industrial design specifications for implementation by others

**CCSID13** Collaborate effectively with other disciplines to ensure successful implementation of design intent

## CCSID1

# Plan project management frameworks for an industrial design project



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### Overview

This standard is about understanding the aims and constraints of an Industrial Design project and creating the strategy necessary to achieve a successful outcome.

# CCSID1

## Plan project management frameworks for an industrial design project

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### Performance criteria

*You must be able to:*

- P1 identify project aims, scope, risks, and context
- P2 plan delivery in phases appropriate to the project
- P3 plan key internal activities, deliverables, timescales and resource requirements for each phase
- P4 identify key external dependencies and liaison methods
- P5 present project plans in a language that communicates to multiple stakeholders.
- P6 assemble a team with the appropriate skills to carry out the required work
- P7 manage an effective internal design team management process

# CCSID1

## Plan project management frameworks for an industrial design project

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### Knowledge and understanding

*You need to know and understand:*

- K1 the concept of progressive convergence towards a final solution
- K2 how to align project deliverables with key milestones
- K3 how organisations assess return on investment from innovation
- K4 the concept of risk analysis – technical, operational and financial
- K5 how to estimate necessary resource expenditure
- K6 budgetary constraints and the impact these may have on your project
- K7 Industrial Design tactics appropriate to the type of project which you are undertaking
- K8 how to present project planning information in clear unambiguous form using words and supporting imagery where appropriate.
- K9 how to assess the specific skills necessary for the project

## CCSID1

Plan project management frameworks for an industrial design project

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**Relevant occupations** Industrial Designer

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**Suite** Industrial Design

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**Key words** industrial Design; Project Management; Design Project

## CCSID2

Identify organisational aims relevant to the industrial design project



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### Overview

This standard is about ensuring that you have a holistic understanding of the aims and culture of the organisation for which you are undertaking an Industrial Design project.

## CCSID2

### Identify organisational aims relevant to the industrial design project

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#### Performance criteria

*You must be able to:*

- P1 identify the core purpose of the organisation
- P2 identify the values and expectations of the organisation
- P3 identify the change aims and time horizons for the project
- P4 identify the target market
- P5 identify channels to market
- P6 identify the organisation stakeholders and their roles in the context of project decision making

## CCSID2

### Identify organisational aims relevant to the industrial design project

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#### Knowledge and understanding

*You need to know and understand:*

- K1 how to interpret and question a design brief to establish the relevant organisational culture and aims
- K2 how Industrial Design interventions connect with organisational culture and aims
- K3 how to form a valid independent assessment of external perceptions of the organisation
- K4 how to summarise and communicate knowledge related to organisational culture and aims in the context of an Industrial Design project



## CCSID2

Identify organisational aims relevant to the industrial design project

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## CCSID3

Identify technological and operational capabilities available to the industrial design project



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### Overview

This standard is about how to manage assumptions for the technological and operational capabilities that would be available for use in the implementation of an Industrial Design solution within set time and investment horizons.

## CCSID3

### Identify technological and operational capabilities available to the industrial design project

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#### Performance criteria

*You must be able to:*

- P1 maintain up to date knowledge of the technologies and processes most affected by Industrial Design decisions
- P2 obtain and retain information about the core technologies and capabilities of the implementing organisation.
- P3 convert general technological and operational descriptions into specific simplified constraints relevant to the creative decision making of the Industrial Design project.
- P4 monitor the fit between technological/operational capability assumptions and the broader project aims.
- P5 engage with other specialists to optimise the relationship between technological / operational requirements and the broader project aims.

## CCSID3

### Identify technological and operational capabilities available to the industrial design project

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#### Knowledge and understanding

*You need to know and understand:*

- K1 how to maintain up to date professional understanding of a broad range of technologies/capabilities potentially available for general Industrial Design implementation.
- K2 how to interact with specialists in order to formulate simplified constraints specific to the Industrial Design project.
- K3 how to assess and optimise the sustainability impact of selected technology/capability implementations.
- K4 how to assess the relationship between Industrial Design decisions and technological/operational implementation risk.
- K5 how to identify and anticipate the needs of other potential third party implementation stakeholders.
- K6 how to make informed Industrial Design decisions that balance technological/operational implementation risk with the broader project aims.
- K7 how to present justifications for the adoption of potential technologies/capabilities not currently used by the organisation.

## CCSID3

Identify technological and operational capabilities available to the industrial design project

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**Suite** Industrial Design

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**Key words** Industrial Design; technological and operational capabilities;

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## CCSID4

Carry out preliminary stakeholder behaviour research to inform industrial design strategy



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### Overview

This standard is about undertaking preliminary research into stakeholder behaviours in order to inform your Industrial Design strategy. Techniques cover a broad range from direct observational methods to indirect contextual research

## CCSID4

Carry out preliminary stakeholder behaviour research to inform industrial design strategy

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### Performance criteria

*You must be able to:*

- P1 select research method appropriate to the project context
- P2 plan the practical application of the chosen research method.
- P3 accurately profile key target stakeholders involved with the in-life experience of the Industrial Design.
- P4 carry out research according to plan
- P5 ensure that valid and reliable evidence is gathered
- P6 evaluate, collate and present information gathered

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## CCSID4

Carry out preliminary stakeholder behaviour research to inform industrial design strategy

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### Knowledge and understanding

*You need to know and understand:*

- K1 a range of both direct and indirect research techniques
- K2 how to select techniques appropriate to specific project aims and context.
- K3 how to profile and recruit target stakeholders
- K4 how to brief individual research exercises
- K5 how to carry out individual research exercises
- K6 how to filter and collate key stakeholder insights
- K7 how to present research findings in a form that inspires better Industrial Design decisions.

## CCSID4

Carry out preliminary stakeholder behaviour research to inform industrial design strategy

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**Key words** Industrial Design; stakeholder research;

## CCSID5

Use scenario based analysis techniques to document current interactions and anticipate future situations and behaviours



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### Overview

This standard is about using scenario based analysis techniques as a framework for detailed visualisation of current and possible future interactions. You will plan scenarios to a level of detail appropriate to the scope of the Industrial Design project. You will use the scenarios to prompt more detailed anticipation of future experiences. You will need to be conversant with a number of different visualisation strategies and techniques.

## CCSID5

Use scenario based analysis techniques to document current interactions and plan future situations and behaviours

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### Performance criteria

*You must be able to:*

- P1 plan and execute scenario mapping strategy at a resolution appropriate to the Industrial Design project
- P2 select visualisation technique(s) appropriate to the resolution, context and issues of the specific Industrial Design project
- P3 create persona profiles documenting the main relevant characteristics of the key stakeholders interacting within the scenarios
- P4 ensure the scenarios reflect the learning from previous stakeholder research
- P5 ensure the scenarios are presented in a format tailored to the audience and to the relevant project phase
- P6 develop and refine the scenarios in response to on-going project feedback learning

## CCSID5

Use scenario based analysis techniques to document current interactions and plan future situations and behaviours

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### Knowledge and understanding

*You need to know and understand:*

- K1 a broad range of scenario mapping techniques appropriate to different types of Industrial Design project.
- K2 how to identify and imagine project specific current and future scenarios.
- K3 how to analyse and give structure to the relevant scenarios
- K4 how to identify stakeholders and plan useful personas
- K5 how to integrate prior research into scenarios and personas
- K6 how to visualise scenarios in a format suited to the project phase and usage
- K7 how to use scenarios to inform and inspire project decisions at various stages of development.

## CCSID5

Use scenario based analysis techniques to document current interactions and plan future situations and behaviours

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**Key words** Industrial Design; scenario based analysis;

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## CCSID6

# Discover and prioritise detailed interaction experience targets



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### Overview

This standard is about utilising scenario mapping to identify and prioritise desirable attributes for the many different interactions within the stakeholder experiences.

## CCSID6

### Discover and prioritise detailed interaction experience targets

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#### Performance criteria

*You must be able to:*

- P1 use scenario maps to inform creative role-play that inspires clearer creative anticipation of future experiences.
- P2 extract and prioritise from role play, word based characterisations of positive future interactions within the overall experiences.
- P3 capture and document essential workflows where relevant.
- P4 identify and document key interaction touch points across all relevant media.



## CCSID6

### Discover and prioritise detailed interaction experience targets

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#### Knowledge and understanding

*You need to know and understand:*

- K1 how to interpret scenario mapping tools in different formats.
- K2 how to use role-play techniques to better empathise with stakeholders and discover new opportunities for better experience outcomes
- K3 how to use words to characterise specific interactions within overall experiences
- K4 how to describe precise workflow choreography using flow-charting tools
- K5 how to recognise and document distinct touch points and their specific role within the overall experience
- K6 how to create and document potential thematic frameworks that characterise overall experiences.

## CCSID6

Discover and prioritise detailed interaction experience targets

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**Relevant occupations** Industrial Designer

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**Suite** Industrial Design

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**Key words** Industrial Design; interaction experience

## CCSID7

Create propositions that connect market opportunity, investor goals and available capabilities



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### Overview

This standard is about creating propositions in the form of innovation strategies that make a holistic connection between unmet market needs, organisational aims and available technologies/capabilities in order to support better early feasibility / risk assessment.

## CCSID7

### Document creative opportunities relevant to investor mission and capabilities

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#### Performance criteria

*You must be able to:*

- P1 use recognised techniques to anticipate stakeholder experiences and associated unmet needs.
- P2 use recognised techniques to understand organisational aims
- P3 use recognised techniques to anticipate technologies and capabilities available within project parameters.
- P4 imagine potential propositions arising from novel interactions between unmet needs, organisational aims and available technologies / capabilities
- P5 use rapid 'internal team' visualisation techniques to self-assess, share, and refine potential propositions
- P6 create compelling 'external audience' visualisations that clearly communicate potential propositions in formats and detail needed to support strategic feasibility assessments of risk / return potential.

## CCSID7

### Document creative opportunities relevant to investor mission and capabilities

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#### Knowledge and understanding

*You need to know and understand:*

- K1 how to combine insight from separate knowledge areas into a single proposition based a holistic innovation strategy
- K2 how to rapidly identify and assess top level risk/reward issues.
- K3 how to create opportunities out of complex, multidisciplinary, often apparently conflicting, parameters.
- K4 how to rapidly visualise and internally develop early ideas into strategy recommendations.
- K5 the range of available visualisation techniques and the criteria for selecting which of these would be most effective in any given project situation
- K6 how to create visually compelling presentations that clearly communicate stakeholder interactions with the propositions, the supporting insights and top level implementation issues.

## CCSID7

Document creative opportunities relevant to investor mission and capabilities

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**Key words** Industrial Design; design opportunities;

## CCSID8

create novel ideas for future interactions inspired by learning and goal setting activities



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### Overview

This standard is about converting holistic understanding of the project goals and context into free flowing, continuously evolving ideas.

## CCSID8

create novel ideas for future interactions inspired by learning and goal setting activities

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### Performance criteria

*You must be able to:*

- P1 imagine desirable outcomes and how they might be achieved
- P2 create large numbers of ideas on demand
- P3 create ideas effectively in both solo and group situations
- P4 externalise ideas in whatever format best supports the creative thought process
- P5 use self-critical skills to analyse your own ideas from a variety of perspectives
- P6 use self-critical analysis as the inspiration for the evolution of ideas
- P7 use other people's idea as positive creative inspiration in group ideation situations
- P8 resolve conflicting goals or ideas
- P9 progressively evolve individual ideas into thematically grouped sets
- P10 plan and execute different concurrent solution option strategies



## CCSID8

create novel ideas for future interactions inspired by learning and goal setting activities

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### Knowledge and understanding

*You need to know and understand:*

- K1 how to nurture a strong, on-going personal creative mind-set
- K2 how to use a range of established techniques to address creative blockages when these occur
- K3 how to convert challenges into opportunities
- K4 how to address, simultaneously a broad, multi-disciplinary range of challenges
- K5 how to manage an appropriate balance between objective and subjective decision making
- K6 how to use a range of established rapid techniques to externalise early ideas in formats that enable continuous assessment and evolution
- K7 how to assess and mitigate the conceptual risks potentially resulting from Industrial Design decisions.

## CCSID8

create novel ideas for future interactions inspired by learning and goal setting activities

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**Relevant occupations** Industrial Designer

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**Suite** Industrial Design

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**Key words** Industrial Design; interaction experience

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## CCSID9

# Plan simulation methods appropriate to interaction behaviour testing needs



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### Overview

This standard is about selecting and planning the presentation and simulation methods that best support early feedback from various project stakeholders.

## CCSID9

### Plan simulation methods appropriate to interaction behaviour testing needs

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#### Performance criteria

*You must be able to:*

- P1 recognise which Industrial Design decisions require early validation feedback
- P2 recognise which project stakeholders need to be consulted and when
- P3 make effective connections between Industrial Design decisions, learning aims and appropriate simulation media.
- P4 make informed decisions that balance the investment cost of simulations and their learning benefit
- P5 understand how to plan an orderly progression of simulation characteristics from diverse low cost towards selective high cost
- P6 manage the delivery of individual simulation exercises

## CCSID9

### Plan simulation methods appropriate to interaction behaviour testing needs

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#### Knowledge and understanding

*You need to know and understand:*

- K1 how to assess and evolve learning goals throughout an Industrial Design project
- K2 how to remain abreast of a broad and evolving range of simulation techniques relevant to services, software and physical objects, that anticipate both human interaction behaviour and implementation feasibility
- K3 For each simulation technique:
  - K3.1 what skills and facilities are required to deliver it.
  - K3.2 how much it costs
  - K3.3 how quickly it can be created
  - K3.4 how realistically it anticipates known types of learning issue
  - K3.5 what is the risk of misinterpretation by the review audience
  - K3.6 what can be done to mitigate interpretation risk
- K4 how to cost effectively match simulation techniques to learning goals
- K5 how to cost effectively connect simulation review audience selection to industrial design decisions
- K6 how to manage the risk of accessing a simulation review audience according to plan

## CCSID9

Plan simulation methods appropriate to interaction behaviour testing needs

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**Key words** Industrial Design; design simulation methods; interaction behaviour testing;

## CCSID10

# Execute simulations using a range of appropriate techniques



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### Overview

This standard is about creating simulations in a variety of formats to allow assessment of the user interaction behaviour and feasibility of design concept options. Proficiency in a broad range of formats is expected

## CCSID10

### Execute simulations using a range of appropriate techniques

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#### Performance criteria

*You must be able to:*

- P1 hypothesise about what needs to be visualised to best understand and communicate any specific design idea or design challenge
- P2 visualise ideas rapidly in sketch form appropriate to self-review or review by small teams of co-professionals
- P3 conduct rapid visualisations in the form of paper sketches, foam models and simple interaction visualisations such as workflow diagrams and storyboards
- P4 create more sophisticated higher realism, visualisations: 3D CAD models, software user interaction simulations, service experience visualisations in the form of storyboards and simple video animations and marketing communication material simulation
- P5 self-plan a level of simulation detail appropriate to the design issues under investigation and project strategy
- P6 regularly self-assess whether or not the simulation in progress is fit for its learning purpose and revise tactics accordingly, throughout the creation phase



## CCSID10

### Execute simulations using a range of appropriate techniques

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#### Knowledge and understanding

*You need to know and understand:*

- K1 the overall project aims
- K2 the specific project aims of the current project phase
- K3 the specific learning aim of each individual simulation activity
- K4 the current status of the design goals and challenges
- K5 how to execute core simulation techniques in which every Industrial Designer must have proficiency:
  - K5.1 rapid 2D techniques:
    - K5.1.1 free hand sketching of objects, people and environments
    - K5.1.2 scenario storyboards and schematic workflows
  - K5.2 rapid 3D sketching skills
  - K5.3 foam modelling
  - K5.4 card modelling
  - K5.5 basic wooden rig fabrication
  - K5.6 rapid time based techniques:
    - K5.6.1 paper based and simple programming based simulation of 'cause and effect' of critical aspects of user interaction sequences.
- K6 how to execute advanced simulation techniques:
  - K6.1 3D CAD modelling with ability to create complex form topologies
  - K6.2 high realism 'virtual photography' based on 3D CAD models
  - K6.3 use of rapid prototyping technology to create tangible object simulations
  - K6.4 simple animations of 3D CAD models
  - K6.5 video animations of interaction storyboards
  - K6.6 video shorts of simulated interpersonal interactions
  - K6.7 detailed software interaction simulations
  - K6.8 simple 'proof of concept' working rigs.
- K7 how to brief other simulation specialists regarding the precise requirements for sophisticated simulations that require a level of specialist skill beyond the requirements of Industrial Design professionals

## CCSID10

### Execute simulations using a range of appropriate techniques

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- K7.1 photo realistic appearance models
- K7.2 complex freehand clay modelling
- K7.3 'virtual realism' quality computer rendering
- K7.4 complex video production
- K7.5 complex software interaction simulations
- K7.6 complex working technical rigs

## CCSID10

Execute simulations using a range of appropriate techniques

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## CCSID11

# Refine design solutions based on on-going simulation feedback



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### Overview

This standard is about how to assess simulations and use the learning to inform and inspire the development of a design solution.

## CCSID11

### Refine design solutions based on on-going simulation feedback

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#### Performance criteria

*You must be able to:*

- P1 identify what specific properties of each simulation provide useful feedback.
- P2 identify what specific properties of each simulation pose a danger of misleading evidence
- P3 plan and execute routine on-going 'self-assessment' evaluations of simulations both during their construction and on completion
- P4 use role play techniques to achieve high levels of personal empathy with the target audience for the design solution
- P5 conduct interactive 'co-creation' learning sessions with users
- P6 present simulations to other stakeholders in ways that clearly communicate their purpose and limitation
- P7 use the presentation of simulations to clearly explain the potential risks and rewards of the design solution under assessment
- P8 invite, collect and interpret independent external assessments of simulations, both pro-actively and as part of formal project reviews
- P9 refine design solutions in the areas in which the simulation has provided valid feedback
- P10 collate information obtained from the assessments and where relevant keep formal project goal documentation current and aligned with the most current learning
- P11 document desirable design changes based on the learning
- P12 study what impact the changes may have on other aspects of the design, or on goals and constraints
- P13 decide on design refinements to be implemented
- P14 update design documentation to reflect the changes

## CCSID11

### Refine design solutions based on on-going simulation feedback

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#### Knowledge and understanding

*You need to know and understand:*

- K1 the project objectives and target user interaction scenarios
- K2 the agreed project parameters for search scope and assumptions for implementation
- K3 how to set up or support simulation review sessions across a broad range of situations, from frequent internal self-assessments to formal reviews involving non design stakeholders such as other parties involved with project delivery or end users
- K4 how to adopt a personally empathic mind set, well connected to the characteristics of end users and other stakeholders, especially those with strong differences to the creating designer for example older consumers, pregnant women or specialist professionals
- K5 how to use frequent self-assessment of simulations to clarify one's personal understanding of how to label and evolve design ideas
- K6 how to extract qualitative and quantitative feedback from simulation assessments
- K7 how to rapidly connect broader design aims with the specific learning available from self-assessment of individual simulation and refine design solutions accordingly
- K8 how to document and report to third parties on the learning from self-assessments
- K9 how to record and report the collective findings of a group review sessions
- K10 how to interpret the learning reported by external assessors making use of the project simulations
- K11 where and how the current design is documented and how to keep this documentation up to date and properly labelled with a unique reference
- K12 how to ensure the planned design changes have the necessary consent or consensus

## CCSID11

Refine design solutions based on on-going simulation feedback

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**Key words** Industrial Design; design solutions; simulation feedback;

## CCSID12

Produce clear, precise, actionable industrial design specifications for implementation by others



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### Overview

This standard is producing a clear and precise industrial design specification that can be implemented by others.



## CCSID12

Produce clear, precise, actionable industrial design specifications for implementation by others

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### Performance criteria

*You must be able to:*

- P1 identify and agree with appropriate people the content and form of information required
- P2 produce clear and concise information that explains the design approach
- P3 prepare complete and accurate technical information to communicate the requirements for design realisation
- P4 identify clear and give clear reasons for any amendments to the design brief

## CCSID12

Produce clear, precise, actionable industrial design specifications for implementation by others

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### Knowledge and understanding

*You need to know and understand:*

- K1 how to prepare and present written material in support of a design
- K2 how to research information about design realisation
- K3 how to present technical information using conventions appropriate to your specialism
- K4 the requirements and constraints for design realisation
- K5 sources of information on design realisation

## CCSID12

Produce clear, precise, actionable industrial design specifications for implementation by others

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**Relevant occupations** Industrial Designer

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**Suite** Industrial Design

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**Key words** Industrial Design; design specification; design implementation

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## CCSID13

Collaborate effectively with other disciplines to ensure successful implementation of design intent



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### Overview

This standard is about ensuring the successful implementation of the design intent, through effective collaboration with those involved in the implementation phase of the project. You will need to handover over the project to those involved in the implementation ensuring that they fully understand the requirements and the constraints. You will continue to provide support to others throughout the project implementation promptly resolving any issues that arise.

## CCSID13

### Collaborate effectively with other disciplines to ensure successful implementation of design intent

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#### Performance criteria

*You must be able to:*

- P1 communicate effectively with the other parties responsible for Industrial Design implementation to ensure the Industrial Design requirements are clearly understood
- P2 take timely action to correct any misunderstandings
- P3 interact with the other parties responsible for implementation to understand their response to the Industrial Design requirements
- P4 respond to challenges to the Industrial Design specification in a balanced holistic manner that ensures the minimum compromise to the project's customer experience objectives without demanding larger compromises to other strategic project objectives such as cost or delivery timescales
- P5 agree changes where necessary and gain approval for these changes from the relevant project control authority
- P6 effectively implement agreed and authorised changes to the Industrial Design specification
- P7 maintain correct documentation control discipline during periods of frequent information releases
- P8 establish and execute a schedule of clear milestones at which to review interim implementations and verify their compliance to the Industrial Design specification
- P9 keep project commissioning and control stakeholders adequately briefed on the status of the implementation relative to the Industrial Design specification
- P10 ensure the implementation is supported up to a clear agreed 'Industrial Design sign off' milestone

## CCSID13

### Collaborate effectively with other disciplines to ensure successful implementation of design intent

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#### Knowledge and understanding

*You need to know and understand:*

- K1 the overall strategic and commercial aims of the project
- K2 the capabilities of the implementation strategies and processes that will be required to implement the Industrial Design
- K3 the key customer experience excellence aims of the project
- K4 the roles, responsibilities and special interests of the other project stakeholders
- K5 the general communication challenges presented by the project context
- K6 how to set up and execute a project specific liaison strategy from Industrial Design handover to sign off
- K7 the specific challenges faced by specialists implementing the Industrial Design specification for the project in question
- K8 the full range of modern communication and information transfer techniques
- K9 the application of recognised document control and quality assurance techniques
- K10 the exact details of how to apply any project specific project management and control practices especially those relevant to inter-disciplinary handovers and communication
- K11 how to communicate effectively using precise terminology relevant to the other specialists implementation parties in any conversation
- K12 how to respond appropriately and constructively to any queries or problems raised during the implementation phase

## CCSID13

Collaborate effectively with other disciplines to ensure successful implementation of design intent

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