# Systems design DESN

Designing systems to meet specified requirements and agreed systems architectures.

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| **Guidance Notes:**  Activities may include, but are not limited to:   * using design concepts to develop system design and provide the basis for systems construction and verification * designing or selecting system components * designing systems compatible with contemporary computing architectures and selection of components such as cloud computing service models and edge computing * designing cyber-physical systems that integrate computational and physical components * considering human factors and socio-technical aspects when designing systems that involve significant human interaction * developing a complete set of detailed models, properties, and/or characteristics described in a form suitable for implementation * adopting and adapting of system design life cycle models based on the context of the work using predictive (plan-driven) approaches or adaptive (iterative/agile) approaches for system design * adhering to regulatory requirements and organisational standards including security. |

## Level 2

Assists in the creation and documentation of system design elements under routine supervision.   
Follows established procedures and guidelines.   
Helps create and maintain documentation.

## Level 3

Follows standard approaches and established design patterns to create new designs for simple systems or system components.  
Identifies and resolves minor design issues.   
Identifies alternative design options and seeks guidance when deviating from established design patterns.

## Level 4

Designs system components using appropriate modelling techniques following agreed architectures, design standards, patterns and methodology.   
Identifies and evaluates alternative design options and trade-offs. Creates multiple design views to address the concerns of the different stakeholders and to handle functional and non-functional requirements.   
Models, simulates or prototypes the behaviour of proposed system components to enable approval by stakeholders.   
Produces detailed design specifications to form the basis for the construction of systems. Reviews, verifies and improves own designs against specifications.

## Level 5

Designs large or complex systems and undertakes impact analysis on major design options and trade-offs.   
Ensures that the system design balances functional and non-functional requirements.   
Reviews systems designs and ensures that appropriate methods, tools and techniques are applied effectively. Makes recommendations and assesses and manages associated risks.   
Adopts and adapts system design methods, tools and techniques. Contributes to development of system design policies, standards and selection of architecture components.

## Level 6

Develops and drives adoption of and adherence to organisational policies, standards, guidelines, and methods for system design.   
Champions the importance and value of system design principles and the selection of appropriate systems design life cycle models.   
Leads system design activities for strategic, large and complex systems development programmes. Develops effective implementation strategies consistent with specified requirements, architectures and constraints of performance and feasibility.   
Develops system design requiring the introduction of new technologies or new uses for existing technologies.