# DRAFT PERFORMANCE BANDS

## SOFTWARE DESIGN AND DEVELOPMENT

The typical performance in this band:

| Band 6 | designs a complex computer-based solution to a problem reflecting an extensive knowledge of the inter relationship between hardware and software  
|        | designs solutions to a variety of complex, unfamiliar problems as algorithms using correct control structures and appropriate data structures  
|        | analyses a problem and designs comprehensive software solutions using appropriate development methodologies and project management techniques  
|        | displays expertise in implementing the phases of the software development cycle to produce a solution relevant to users' needs  
|        | demonstrates sophisticated communication skills both in designing and documenting a software solution to a specified problem, and in recognising and addressing users' needs and concerns  
|        | critically evaluates the effects on society of the use of computer-based solutions, and produces solutions which reflect these values  
|        | demonstrates an extensive knowledge of the tools used to manage and represent complex software solutions  
|        | demonstrates an extensive understanding of the terminology used in software design and development  
|        | applies extensive knowledge and understanding of historical developments to current and emerging technologies and practices |

| Band 5 | designs a thorough computer-based solution to a problem, reflecting a detailed knowledge of the inter relationship between hardware and software  
|        | designs solutions to a specified problem as detailed algorithms using correct control structures and appropriate data structures  
|        | analyses a problem and designs detailed software solutions using appropriate development methodologies, utilising some project management techniques  
|        | successfully implements the phases of the software development cycle to produce a software solution relevant to users' needs  
|        | demonstrates accomplished communication skills both in designing and documenting a software solution to a specified problem and in recognising users' needs and concerns  
|        | makes informed judgments about the effects on society of computer-based software solutions  
|        | demonstrates knowledge of the tools used to manage and represent complex software solutions  
|        | expresses ideas that demonstrate an understanding of the terminology used in software design and development  
|        | relates knowledge and understanding of historical developments to current and emerging technologies and practices |

| Band 4 | designs a computer-based solution to a problem reflecting knowledge of the inter relationship between hardware and software  
|        | designs a solution to a specified problem as an algorithm showing some understanding of control structures and data structures  
|        | analyses a problem and designs clear software solutions using appropriate development methodologies, recognising the need for project management  
|        | adequately outlines the phases of the software development cycle required to produce a solution to a specified problem  
|        | demonstrates good communication skills in documenting a software solution to a specified problem and explaining the system to users  
|        | gives clear explanations of the impact on society of computer-based software solutions  
|        | recognises and describes a broad variety of the tools used to represent software solutions  
|        | writes adequate definitions of the terminology used in software design and development  
|        | demonstrates knowledge and understanding of historical developments and current and emerging technologies |

| Band 3 | modifies an existing computer-based solution to a problem reflecting basic knowledge of the inter relationship between hardware and software  
|        | reads, interprets and writes basic algorithms which use a variety of data structures  
|        | understands a problem and modifies an existing design of a software solution  
|        | has a basic understanding of the phases of the software development cycle  
|        | demonstrates communication skills in documenting a software solution to a basic problem and communicating this to users  
|        | describes the impact on society of computer-based software solutions  
|        | recognises most of the tools used to represent software solutions  
|        | has a knowledge of basic terminology used in software design and development  
|        | shows some knowledge of historical developments and current and emerging technologies |

| Band 2 | describes the hardware and software of a given computer system  
|        | reads and interprets simple algorithms which use basic control structures and unstructured data types  
|        | names the phases of the software development cycle  
|        | demonstrates limited communication skills in attempting to document a software solution to a simple problem  
|        | identifies the issues related to the impact on society of computer-based software solutions  
|        | provides basic definitions for some common terms used in software design and development  
|        | recounts isolated historical developments and recognizes current technologies |

| Band 1 |