

## DRAFT PERFORMANCE BANDS (revised Sept 2002)

### ENGINEERING STUDIES

*The typical performance in this band:*

<b>Band 6</b>	<ul style="list-style-type: none"> <li>• demonstrates extensive knowledge of the content, methodology, influences and responsibilities in engineering practices</li> <li>• constructs and evaluates engineering reports in order to recommend and predict solutions to engineering problems</li> <li>• displays critical thinking skills involving the analysis of engineering systems by choosing, performing and evaluating graphical and analytical solutions</li> <li>• demonstrates an expertise in the analysis and solution of mechanics problems</li> <li>• demonstrates a comprehensive understanding of the structure and property relationship between materials and manufacturing processes by interpreting test results and explaining design limitations</li> <li>• makes reasoned identification of materials and processes used in the past and the implications for engineering development and maintenance of the environment</li> <li>• is critically aware of the social, cultural and historical issues in engineering</li> <li>• demonstrates sophisticated written, graphical and mathematical communication skills, using appropriate engineering terminology, methods and conventions</li> </ul>
<b>Band 5</b>	<ul style="list-style-type: none"> <li>• demonstrates thorough knowledge of the content, methodology, influences and responsibilities in engineering practices</li> <li>• assembles and organises information for engineering reports and makes recommendations and predictions based upon engineering reports</li> <li>• is able to choose appropriate methods of graphical and analytical problem solving</li> <li>• uses the principles of engineering mechanics competently to solve problems involving statics and dynamics by selecting and manipulating appropriate data into relevant formulae</li> <li>• has a good understanding of manufacturing processes and the structure and property relationship between materials</li> <li>• recognises the social, cultural and historical implications of technological change in engineering</li> <li>• demonstrates highly developed written, graphical and mathematical communication skills, using appropriate engineering terminology, methods and conventions</li> </ul>
<b>Band 4</b>	<ul style="list-style-type: none"> <li>• demonstrates sound knowledge of the content, methodology, influences and responsibilities in engineering practices</li> <li>• prepares and interprets engineering reports and makes some recommendations</li> <li>• selects from both graphical and analytical solutions to solve problems</li> <li>• has a working knowledge of the principles of engineering mechanics and can carry out relevant calculations to solve problems involving statics and dynamics</li> <li>• links material structures with properties and therefore identifies appropriate manufacturing processes for a range of applications</li> <li>• traces the development of selected components in engineering and their impact on society</li> <li>• demonstrates sound written, graphical and mathematical communication skills, using appropriate engineering terminology, methods and conventions</li> </ul>
<b>Band 3</b>	<ul style="list-style-type: none"> <li>• demonstrates basic knowledge of the content, methodology, influences and responsibilities in engineering practices</li> <li>• prepares and uses engineering reports</li> <li>• processes data in problem solving activities in engineering mechanics, such as by using forces, free body diagrams and vector geometry</li> <li>• has a foundational understanding of manufacturing processes and the classification of materials</li> <li>• demonstrates an awareness of the development and operation of engineered products and of the contribution of engineering to society</li> <li>• demonstrates basic written, graphical and mathematical communication skills, using engineering terminology, methods and conventions</li> </ul>
<b>Band 2</b>	<ul style="list-style-type: none"> <li>• demonstrates elementary knowledge of the content, methodology, influences and responsibilities in engineering practices</li> <li>• recognises the importance of engineering reports</li> <li>• substitutes data into formulae while attempting to solve engineering mechanics problems</li> <li>• interprets data from graphs, recalls basic definitions and identifies steps in manufacturing processes</li> <li>• recognises that engineering processes impact upon people</li> <li>• demonstrates elementary written, graphical and mathematical communication skills, using simple engineering terminology and conventions</li> </ul>
<b>Band 1</b>	<ul style="list-style-type: none"> <li>•</li> </ul>