

# Apprenticeship Standard – Papermaking

## Occupation: Papermaker

The Papermaker operates machinery both individually, or as part of a team, to convert raw materials to paper products in an operator or assistant role in the process for Pulping, Drying, Reeling, Coating, basic Maintenance and Quality Control Testing. Working with minimum supervision the Papermaker has knowledge of the entire process.

**Profile:** Papermakers work in a wide range of manufacturing organizations, including but not exclusively, **newspaper, office papers, packaging and board, tissue, speciality, security, medical, currency and tea bag.** Paper can be made from a variety of natural fibres such as soft and hard woods, abaca, bagasse, cotton and esparto depending on the product and paper machine being used. The Papermaker will manufacture the product from raw materials using a variety of equipment such as debarkers, pulpers, de-inkers, beaters, refiners and site specific paper machines.

## Occupational Skills & Knowledge

JOB ROLE	SKILL The Papermaker will;	KNOWLEDGE & UNDERSTANDING The papermaker will know and understand;
<b>Communication</b>	<ul style="list-style-type: none"> <li>Communicate effectively using a full range of techniques: speaking; listening; writing; body language and presentation.</li> </ul>	<ul style="list-style-type: none"> <li>Systems and processes associated with exchange/recording of information required for the role.</li> </ul>
<b>Health, Safety, Environment</b>	<ul style="list-style-type: none"> <li>Work safely on a paper machine and other specific areas of the mill, maintaining excellent housekeeping.</li> <li>Be aware of environmental controls and impact.</li> </ul>	<ul style="list-style-type: none"> <li>Site and process safety, environment and risk management systems.</li> <li>Compliance with statutory, industry and company health, safety and environmental regulations.</li> </ul>
<b>Quality &amp; Testing</b>	<ul style="list-style-type: none"> <li>Test the paper to site and customer specifications using a variety of testing equipment and methods.</li> <li>Take responsibility for decisions on quality.</li> </ul>	<ul style="list-style-type: none"> <li>Quality processes and procedures to meet the requirements of quality standards relevant to the organization.</li> <li>Quality compliance requirements.</li> </ul>
<b>Stock Preparation (Virgin &amp; Recovered fibres)</b>	<ul style="list-style-type: none"> <li>Prepare fresh water and primary and secondary fibres and test the properties of material.</li> <li>Operate machines such as mechanical pulpers, chemical pulpers, refiners, de-inkers and other such equipment to produce the specifications required for the paper machine for a specific sector.</li> </ul>	<ul style="list-style-type: none"> <li>Mechanical pulpers, chemical pulpers, refiners, de-inkers and other such equipment are used to produce optimal flow and required specifications.</li> </ul>
<b>Stock Approach &amp; Wet End Chemistry</b>	<ul style="list-style-type: none"> <li>Produce machine stock through mixing of fibres, additives and colours.</li> <li>Control consistency, dilution, screening and cleaning of stock.</li> <li>Control the use of chemical additives to enhance and improve paper properties utilizing sizing, starch, bleaching and brightening agents.</li> <li>Control the use of chemicals to improve runnability such as de-foamers, fixatives and biocides.</li> <li>Carry out in-depth cleaning of chests, vats, silos, pits etc to an acceptable standard.</li> </ul>	<ul style="list-style-type: none"> <li>How fibres react with chemicals.</li> <li>Calculate optimal flow rates using chemicals.</li> <li>Flow in pipes.</li> <li>Vessels including holding and mixing.</li> <li>Chemical additives including process aids and functional aids.</li> </ul>
<b>Sheet Forming Systems</b>	<ul style="list-style-type: none"> <li>Operate a paper machine for a specific sector.</li> <li>Carry out forming wire changes to the relevant paper machine.</li> </ul>	<ul style="list-style-type: none"> <li>Fourdrinier, twin wire systems, multi ply, mould machines and other machines to produce paper for a specific sector.</li> <li>Control sheet forming and drainage through use of control settings of material flow and drainage components.</li> </ul>

<b>Press &amp; Drying Sections</b>	<ul style="list-style-type: none"> <li>• Mechanically drain paper by use of presses and by use of heat by drying and rolling of these.</li> <li>• Test and evaluate the quality properties measured on the running paper and control any changes required.</li> <li>• Carry out fabric and dry wire changes appropriate to the relevant paper machine.</li> </ul>	<ul style="list-style-type: none"> <li>• Primary objectives of pressing.</li> <li>• Types of presses.</li> <li>• Press rolls.</li> <li>• Press felts &amp; dry wires.</li> <li>• Drying Systems.</li> <li>• Steam and Condensate Systems.</li> </ul>
<b>Coatings &amp; Calendaring</b>	<ul style="list-style-type: none"> <li>• Prepare coatings according to formulae and utilize these according to customer paper specifications.</li> </ul>	<ul style="list-style-type: none"> <li>• Calendering systems to gain customer paper specifications.</li> </ul>
<b>Reel Up &amp; Slitting</b>	<ul style="list-style-type: none"> <li>• Operate reel up systems for optimum reel.</li> <li>• Operate slitting systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Reel up systems for optimum reel.</li> <li>• Slitting systems.</li> </ul>
<b>Engineering</b>	<ul style="list-style-type: none"> <li>• Measure temperatures, pressures, speeds, and flows; carry out adjustments for any measurement out of specification.</li> <li>• Carry out basic operator engineering maintenance such as lubrication, fitting of parts and changing filters etc.</li> <li>• Carry out deep cleaning on a variety of equipment.</li> </ul>	<ul style="list-style-type: none"> <li>• Lubrication systems.</li> <li>• Basic Air systems.</li> <li>• Pump systems.</li> <li>• Basic Hydraulics</li> <li>• Structures problem solving.</li> <li>• Route cause analysis.</li> <li>• Fault finding techniques.</li> <li>• Basic electrical supply.</li> </ul>
<b>Business Improvement Techniques (BIT) including Continuous Improvement</b>	<ul style="list-style-type: none"> <li>• Use the lean tools and techniques to identify waste in stock preparation, paper machines and finishing.</li> <li>• Able to identify areas for business improvement</li> <li>• Carry out a continuous improvement project in a specific area to improve a process.</li> <li>• Use KPIs as a tool for measuring performance.</li> </ul>	<ul style="list-style-type: none"> <li>• Health and Safety.</li> <li>• 8 Wastes.</li> <li>• Key Performance Indicators (KPIs)</li> <li>• Process Flow Analysis.</li> <li>• Problems Solving Techniques, 5s – Workplace Organization, Visual Management Systems.</li> <li>• Standard Operating Procedures.</li> <li>• Single Minute Exchange of Die.</li> </ul>

## Behaviours

Papermakers must also demonstrate:

- The required attitudes, behaviours and interpersonal skills associated with the professional workplace.
- Active promotion of positive safety behaviours at all times
- The ability to work effectively as an individual and as part of a team.
- Proactivity in finding solutions to problems.
- A commitment to quality and continuous improvement.
- A recognition and appreciation of equality and diversity in the workplace.
- The ability to handle change and respond to change management processes.

## Qualifications

All apprentices will be required to achieve a Level 2 NVQ Diploma in Performing Engineering Operations or equivalent as a pre-requisite to taking the end-point assessment process.

Apprentices without level 2 English and Mathematics will need to achieve this level prior to completion of their Apprenticeship.

## Entry Requirements

Individual employers will identify any relevant entry requirements. Most candidates will typically have GCSEs (or equivalent) at A\* - C including a minimum of Mathematics, English, ITC and possibly a relevant science.

**Duration of Apprenticeship:** Typically 36 months at Level 3

**Review Date:** The standard will be reviewed after 3 years.