Standard
L4: Textile Technical Specialist

UOS reference number
ST0581

Title of occupation
Textile Technical Specialist

Core and options
Yes

Resubmission
No

Level of occupation
Level 4

Route
Engineering and Manufacturing

Typical duration of apprenticeship
24 months

Target date for approval
31 May 2019

Occupational profile

Summary

This occupation is a technical role within textile and fashion advanced manufacturing companies. The occupation is a production/manufacturing role that involves the production scheduling of textiles for woven and finished fabrics and managing personnel in a factory setting. The broad purpose of the occupation is to ensure that the technical capabilities of the plant, the product and the machinery are appropriately and innovatively fined-tuned to meet customer expectations. This involves the use of specialist textile machinery and equipment to weave and finish yarn and fabrics which service the world's textile supply chain. A Textile Technical Specialist is highly skilled and can utilise, operate and maintain all equipment within an area of operation. In their daily work, an employee in this occupation interacts with a wide variety of individuals from the most senior technologists, leaders and directors, to shop floor operatives. Textile Technical Specialists work in a sophisticated production environment using ICT systems to plan and programme production machinery, interchanging between manufacturing facilities and laboratories. Almost all their work is indoors in controlled environments and they would usually deal with customers by telephone or email over technical matters that affect production performance. An employee in this occupation is responsible for the exact machinery programming, scientific analysis, accurate measurements, trials, whole production and efficiency as well as quality of fabric production for textile weaving and finishing applications. The role is heavily mechanised with the use of bespoke ICT systems. It directly involves the production/output of fabrics to meet a high value market. They work in a senior role as a business's technical expert and lead a team of operatives. They report directly to senior management and directors and have overall scrutiny and responsibility for the accuracy of manufactured products. Textile Specialist have overall autonomy for the use of production machinery, ensuring that appropriate personnel are appointed to production roles to meet demand. They are employed across micro businesses, SMEs and large businesses, ranging from small weaving and finishing businesses to large clothing businesses to meet requirements of a global fashion market.

Typical job titles
Typical job titles include - Weaving Overlooker - Weaving Technician - Weaving Manager - Technical Weaver - Finishing Technician - Finishing Manager - Technical Finisher - Textile Technician - Production Managers - Textile Technologist

Core duties

Duty	Criteria for measuring performance	Knowledge	Skills	Behaviours
D1: Plan daily production schedules for specialist textile equipment.	• Processing speeds and maintenance logs • Accuracy in production quality; • Standard Operating Procedures; • Compliance with Health & Safety at Work Act; • Adhere to specialist regulations that affect textile manufacturing.	K1, K3, K4, K8	S1, S2, S3, S4, S5, S6, S8, S10, S11	B1, B3
D2: Manage staff within the team to ensure effective and efficient textile production.	1. Manage the speed efficiencies and machine capabilities on textile weaving and finishing machinery with the team. 2. Manage the approach to tolerance and accuracy within the team and deal with conflict/challenges. 3. Ensure that all production practice meets the Health & Safety At Work Act; 4. Manage personnel performance through effective production analysis and performance appraisal	—	S2, S6	B2, B4
D3: Maximise machinery capability for speed and efficiency.	1. Tailor optimisation for effective production routines and drive core values in production 2. Plan and schedule maintenance to reduce downtime and maximise profitability. 3. Ensure that all production practice meets the Health & Safety At Work Act; 4. Follow Safe Operating Procedures in line with company policy for management of textile production.	K3, K4	S1, S3, S4, S5, S6, S10, S11	B1, B3, B4, B5
D4: Create technical product reports that demonstrate production expectations for customers, taking into account the technical specifications needed to meet bespoke client needs.	1. Industry expected production speed on textile weaving and finishing equipment. Speed falls in line with machinery capability and learners will need to know which machines can/do operate faster, depending on the production materials being used. 2. Deploy a "Within Tolerance" accuracy rate or, a "Zero Tolerance" accuracy rate depending on customer need and material value. 3. Ensure that all production practice meets the Health & Safety at Work Act; 4. Follow Safe Operating Procedures in line with company policy for management of textile production.	K3, K4	S5, S6	B3, B5
D6: Calculate production, ratios, energy consumption, and other measurements appropriate to the production of high quality textiles.	1. Industry expected production speed on textile weaving and finishing equipment. Speed falls in line with machinery capability and learners will need to know which machines can/do operate faster, depending on the production materials being used. 2. Deploy a "Within Tolerance" accuracy rate or, a "Zero Tolerance" accuracy rate depending on customer need and material value. 3. Ensure that all production practice meets the Health & Safety at Work Act; 4. Follow Safe Operating Procedures in line with company policy for management of textile production.	K3, K4, K8	S3, S4, S5, S6	B3, B4
D7: Manage health & safety processes undertaken and maintain safety of the team.	1. plan production with clients and understand production need before commencement 2. work with the team to ensure capability and programming is exact, tailoring machine optimisation accordingly 3. provide realistic expectations to clients regarding timescales, costs, performance and longevity	K1, K3	S1, S2	B5

Core duties (continued)

Duty	Criteria for measuring performance	Knowledge	Skills	Behaviours
D8: Manage customer need and produce according to specific bespoke client requirement.	1. Industry expected production speed on textile weaving and finishing equipment. Speed falls in line with machinery capability and learners will need to know which machines can/do operate faster, depending on the production materials being used. 2. delivery core values and requirements to clients at all times; 3. Ensure that all production practice meets the Health & Safety at Work Act; 4. Follow Safe Operating Procedures in line with company policy for management of textile production. 5. Plan and maintain machinery to ensure tailoring and optimisation is managed (downtime)	K2, K3, K4	S2, S5, S8	B2, B3, B5
D9: Tailor/adjust equipment for effective production and optimise machinery ensuring that the core values of production are maintained throughout.	1. Industry expected production speed on textile weaving and finishing equipment. Speed falls in line with machinery capability and learners will need to know which machines can/do operate faster, depending on the production materials being used. 2. utilise the skills of the team to promote machinery maintenance and improvement 3. Ensure that all production practice meets the Health & Safety at Work Act; 4. manage maintenance scheduling in line with client preference and/or business preference.	K3, K8	S3, S4, S5, S6, S10, S11	B1, B2, B3, B4, B5
D10: Plan and maintain all schedules for upgrade, upkeep and maintenance to reduce downtime production loss.	1. Industry expected production speed on textile weaving and finishing equipment. Speed falls in line with machinery capability and learners will need to know which machines can/do operate faster, depending on the production materials being used. 2. Deploy a "Within Tolerance" accuracy rate or, a "Zero Tolerance" accuracy rate depending on customer need and material value. 3. Ensure that all production practice meets the Health & Safety at Work Act; 4. Follow Safe Operating Procedures in line with company policy for management of textile production. 5. Deliver service in line with ISO 140001 Environment standard	K3, K4	S3, S8	—
D11: Maintain quality control expectations and identify fault through rigorous analysis of end product.	1. Industry expected production speed on textile weaving and finishing equipment. Speed falls in line with machinery capability and learners will need to know which machines can/do operate faster, depending on the production materials being used. 2. Deploy a "Within Tolerance" accuracy rate or, a "Zero Tolerance" accuracy rate depending on customer need and material value. 3. Ensure that all production practice meets the Health & Safety at Work Act; 4. Follow Safe Operating Procedures in line with company policy for management of textile production. 5. Deliver service in line with appropriate environment standard	K4, K8	S5	—

Duty	Criteria for measuring performance	Knowledge	Skills	Behaviours
D12: Set up, run, maintain and oversee finishing equipment.	1. Expected production speed for textile finishing equipment. Speed falls in line with machinery capability and learners will need to know which machines can/do operate faster, depending on the production materials being used. 2. Deploy a "within tolerance" accuracy rate or, a "zero tolerance" accuracy rate depending on customer need and material value. 3. Ensure that all production practice meets the Health & Safety at Work Act; 4. Follow Safe Operating Procedures in line with company policy for management of textile production.	K3, K8, K9, K10, K11, K12	S3, S5, S6, S8, S10, S11, S12, S13, S14, S15	B1, B2, B3, B4, B5

Option 2: Technical Weaving Technician

Duty	Criteria for measuring performance	Knowledge	Skills	Behaviours
D5: Set up, run, maintain and oversee weaving processes.	1. Industry expected production speed on textile weaving and finishing equipment. Speed falls in line with machinery capability and learners will need to know which machines can/do operate faster, depending on the production materials being used. 2. Deploy a "Within Tolerance" accuracy rate or, a "Zero Tolerance" accuracy rate depending on customer need and material value. 3. Ensure that all production practice meets the Health & Safety at Work Act; 4. Follow Safe Operating Procedures in line with company policy for management of textile production.	K5, K6, K7, K8	S3, S4, S5, S6, S7, S9, S10, S11	B1, B2, B3, B4, B5

Knowledge

K1: K1. Principles of health, safety and welfare including employment law, safety management systems, safe systems of work, dynamic risk assessment, safe personal protective equipment usage and the adherence to safety management practices.

K2: K2. The textile sector, its history, heritage, manufacturing process and innovation potential in detail. Learners will understand how goods are procured and how they affect the economic potential in UK manufacturing. Understanding the sector will involve research in past, present and future manufacturing processes, including how new technology will affect production.

K3: K3. The sources and processes of the textile supply chain, from raw materials consisting of natural fibres and manufactured fibres, their origin and their manufacturing process. Understanding pre and post production operations from fibre to finished garment. Knowing customer standards and expectations and adapting in-company processes to meet client need.

K4: K4. The quality management systems deployed in textile processing at the high level. learners will require advanced knowledge and understanding of analytical product assessment and how it affects quality. The differences between quality testing methodology, upholding ISO systems, textile specific measurements and industry standards. Read and interpret specifications and test results and implement changes to machinery/processes as required. Understanding which aspects of quality production can affect final creations.

K5: K5. The primary and secondary motions of weaving including techniques used for manufacturing such as shedding (Jacquard, Dobby and Tappet), picking (shuttle, projectile, rapier, air and water jet systems), beat up (crank and cam motions), take up (gear driven and electronic systems), let off (positive and negative systems) in line with production requirements.

K6: K6. Weaving machinery and all components that contribute to an effective production system, including machinery limitations, asymmetrical/symmetrical shed geometry, width setup, machine specification, ancillary services of the weaving machine, breakdown procedures, maintenance schedules, fault analysis and rectification routines, parts replacement.

K7: K7. The conditions in which weaving machinery operates, the temperatures and climatic conditions that affect yarn and fibre manufacturing, cleaning and cross contamination practice, environmental impact of textile manufacturing, waste reduction, recycling.

K8: K8. Sources of fibre production, properties of different fibres and identification methods, how manufactured fibres are produced, and methods used, use of blends in textile manufacturing processes, production methods of raw materials and varied processes fibre to yarn to fabric, specialist materials and properties used in technical textile manufacturing.

K9: K9. The different finishing processes including wet, dry, mechanical and chemical procedures. How finishing techniques can vary but are largely dependent on fibre type and yarn/fabric structure, fibre physical properties, fibre absorption properties and fabric receptivity to finishing agents, and susceptibility to chemical modifications.

K10: K10. Finishing machinery and all services that affect and contribute to finishing of fabric types including woven, knitted, non-woven fabrics including machine limitations and design of construction. The machine finishing processes singeing, crabbing, scouring, carbonising, mercerising, bleaching, milling, hydro-extraction, drying, shearing, raising, pressing, cropping, decatising, steaming, calendering, inspection, tentering and stentering as required within production facilities.

K11: K11. The conditions in which finishing machinery operates, the temperatures and climatic conditions that affect fabric finishing, cleaning and cross contamination practice, environmental impact of textile finishing, waste reduction, recycling.

K12: K12. The use and disposal of chemicals/finishes for mildew proofing, mothproofing, crease resistance, moisture and soil resistance, flame retardents, microencapsulation, easy care, shrink resistance, and other functional coatings.

Skills

S1: S1. Work within, and contribute to, a safe, healthy and well managed environment, taking into consideration the appropriate health & safety legislation that affects textile manufacturing.

S2: S2. Develop working relationships in a manufacturing environment including listening skills around the machinery, effective communication skills with colleagues, identify improvements and interact confidently to ensure that production is achieved.

S3: S3. Configure and prove textile machinery to ensure fabric specification, input all mechanical/electronic settings to maintain quality and productivity. Make changes to machine capabilities for different styles/qualities.

S4: S4. Perform and make records of scheduled maintenance to ensure the efficiency of machinery meets production expectations and reduce malfunctions. Ensure continuing supply of spare parts to eliminate machine downtime and eliminate production losses, liaise with machine manufacturers to overcome performance limitations.

S5: S5. Read and interpret data from production records, specifications, data management, process planning meetings including job documentation and appropriate work instructions.

S6: S6. Accept changing priorities and work flexibly to meet company requirements. Work effectively with others in a team whilst maintaining effective working relationships. Accept that in textile production, the expectation to complete tasks within the job role affects the customer experience.

S7: S7. Set up and configuration of weaving machinery to achieve specific parameters and understand all aspects of the weaving ticket/loom card (including warp plan, weft plan, weave plan, draft plan, yarn count etc) Contribute to achievement of desired production targets and quality standards.

S8: S8. Develop and operate plans for their own work area in line with business practice. Work with Shift Managers to produce specialist, technical reports and data to reinforce results and decision making. Identify priorities that affect the running of production whilst ensuring organisational policies are met.

S9: S9. Manage fault and diagnosis of fabric and loom faults (including short picks, stitching, weft and warp bars, machine lifting, temple marks and cuts etc). Use weaving techniques to

minimise faults. Recognise when fibres, yarns and fabrics used in the pre-weaving operations affect the quality of the woven product.

S10: S10. Rectify machine malfunctions and replace machine parts to tolerance settings. Maintain supply of spare parts to ensure production continuity. Carry out scheduled maintenance to machine manufacturer guidelines and lubricant specifications. Plan and forecast using known periods of peak time and downtime to maximise production with appropriate colleagues.

S11: S11. Utilise production scheduling timing and accuracy to ensure changeover of jobs, staff and machinery are managed and maintained efficiently and effectively, recognising how to forecast and plan.

S12: S12. Set up and configure all types of finishing machinery in the workplace to achieve specific fabric finishes, utilising skill and knowledge of treatment methods to ascertain the best finish. Contribute to achievement of production targets and quality standards in line with business practice.

S13: S13. Identify when finishing treatments need refining by touch, feel, fabric rigidity and data analysis. Know how to diagnose faults in machinery and in process (water softening, temperatures etc). Undertake appropriate remedial activity to fix and redeploy personnel where necessary.

S14: S14. Manage and maintain finishing equipment in line with company policy. Recognise when maintenance is affecting the fabric outcomes and technical performance.

S15: S15. Manage raw materials (fabric) to ensure PH, water and chemical levels are exact and fit for customer requirement. Manage the input and output of fabrics to ensure services are maintained and monitored including environmental impact assessments.

Behaviours

B1: B1. Ensure efficient and effective use of time, especially at shift changeover and during textile machinery downtime or changeovers. Manage time to meet business priorities.

B2: B2. Recognise the value of the role within the organisation and the value of the role others perform, the drive and ambition needed to achieve in all aspects of work, including the importance of self-organisation and self-management of time.

B3: B3. Commit to maintaining the highest standards of precision and excellence as appropriate to mechanised textile production, a positive work ethic in line with the organisation's core strategies and principles.

B4: B4. Appropriate communication techniques within a manufacturing environment, including patience, calmness, vigilance and appropriate communication styles when dealing with all types of customer.

B5: B5. Complies with statutory and organisation health & safety regulations and policies at all times. Accepts responsibility for their workload with a responsible approach to risk. Continually demonstrates a high level of motivation and resilience when facing challenges.

Duty	Training requirement	Method of delivery	Provider type	OTJ days
D1: Plan daily production schedules for specialist textile equipment.				0
D2: Manage staff within the team to ensure effective and efficient textile production.				0
D3: Maximise machinery capability for speed and efficiency.				0
D4: Create technical product reports that demonstrate production expectations for customers, taking into account the technical specifications needed to meet bespoke client needs.				0
D5: Set up, run, maintain and oversee weaving processes.				0
D6: Calculate production, ratios, energy consumption, and other measurements appropriate to the production of high quality textiles.				0
D7: Manage health & safety processes undertaken and maintain safety of the team.				0
D8: Manage customer need and produce according to specific bespoke client requirement.				0
D9: Tailor/adjust equipment for effective production and optimise machinery ensuring that the core values of production are maintained throughout.				0
D10: Plan and maintain all schedules for upgrade, upkeep and maintenance to reduce downtime production loss.				0
D11: Maintain quality control expectations and identify fault through rigorous analysis of end product.				0
D12: Set up, run, maintain and oversee finishing equipment.				0

Additional information

Entry requirements

No entry requirements specified

Professional recognition

Pofessional body	Level
Textile Institute	LICENTIATESHIP MEMBERSHIP