



Australian Government

MSS405023 Develop a levelled pull system for operations and processes

Release: 1

MSS405023 Develop a levelled pull system for operations and processes

Modification History

Release 1. Supersedes and is equivalent to MSS405023A Develop a levelled pull system for operations and processes

Application

This unit of competency covers the skills and knowledge required to develop and level a customer-driven demand pull system for operations and processes in order to balance the flow of work and minimise inventories.

This unit primarily applies to volume-based manufacturing organisations. However, the skills covered by the unit may also be applied in other organisations where the business is based on high volume processes initiated by customer demand signals (e.g. orders). The unit covers the production planning skills needed to develop and level a demand pull system which meets the business needs of the organisation. This may apply to the initial development of a pull system, or the continuous improvement of an existing system.

This unit primarily requires the application of skills associated with communication in gathering, analysing and applying information and consulting with stakeholders. Problem solving, initiative and enterprise, and planning and organising are required to determine effective operations sequences and flow systems. This unit also requires aspects of self-management and learning to ensure feedback and new learning is integrated into system designs.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Competitive systems and practices

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

- | | | |
|---|--|---|
| 1 | Analyse production systems | <ul style="list-style-type: none">1.1 Acquire an ‘as is’ value map of the process for all major products.1.2 Separate repeated products from specials.1.3 Consult with production, maintenance, supervisory and management workforce on current production system and processes.1.4 Establish rate of flow required to meet customer demand.1.5 Identify process steps causing problems.1.6 Analyse inventories within process and determine causes of high inventories.1.7 Determine costs of problems and inventories.1.8 Develop improved flow sequence and future value map. |
| 2 | Establish sequence | <ul style="list-style-type: none">2.1 Identify equipment and processes which can be sequenced by co-location.2.2 Identify equipment which is not suitable for co-location.2.3 Identify pacemaker process.2.4 Establish/review location of equipment for desired sequencing. |
| 3 | Initiate or develop flow system | <ul style="list-style-type: none">3.1 Determine rate and variability of demand for product.3.2 Compare capability of flow sequence to demand rate and variability.3.3 Set flow rate to level demand at pacemaker and handle variability.3.4 Identify trigger for pacemaker process.3.5 Establish kanban system for other process parts. |
| 4 | Balance the work | <ul style="list-style-type: none">4.1 Determine target time per product. |

- 4.2 Standardise work processes and operations and establish procedures to monitor variation.
- 4.3 Adjust product/batch production to balance work.
- 4.4 Arrange for any required competency development of workforce.
- 4.5 Arrange for implementation of system.
- 4.6 Monitor operation of system and take action according to procedures.

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Competitive systems and practices include one or more of:

- lean operations
- agile operations
- preventative and predictive maintenance approaches
- statistical process control systems, including six sigma and three sigma
- Just in Time (JIT), kanban and other pull-related operations control systems
- supply, value, and demand chain monitoring and analysis
- 5S
- continuous improvement (kaizen)
- breakthrough improvement (kaizen blitz)
- cause/effect diagrams
- overall equipment effectiveness (OEE)
- takt time
- process mapping
- problem solving

- run charts
 - standard procedures
 - current reality tree.
- Inventories within process include one or more of:**
- cycle stock which reflects the replenishment quantity and frequency
 - buffer stock to meet demand variability and forecast errors
 - safety stock required to guard against quality and delivery failures upstream.
- Balance the work means balancing one or more of:**
- time of production
 - effort required by workforce and equipment
 - work organisation
 - job design
 - quality considerations
 - waste and other cost considerations between stations/equipment/processes to achieve levelled pull within allowable time per product.

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS405023 Develop a levelled pull system for operations and processes

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include the ability, for one or more work area/product families, to:

- acquire a value stream map for current products and processes
- analyse process
- perform required calculations to determine flow rate and variability
- correctly identify pacemaker process
- balance the work
- monitor implementation of a levelled pull system and suggest improvements.

Knowledge Evidence

Must provide evidence that demonstrates sufficient knowledge to interact with relevant personnel and be able to develop or improve a pull system, including knowledge of:

- technical and regulatory limits that must be adhered to in operations
- processing requirements of products or services offered by the organisation
- capabilities of equipment
- capabilities and skills of the workforce
- production planning techniques
- methods of calculating rates of demand and flow of work (e.g. takt and pitch)
- techniques for achieving a smooth and consistent flow of work
- relationship of level of inventory to efficiency and muda (waste).

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- The collection of performance evidence is best done from a report and/or folio of evidence drawn from:
 - a single project which provides sufficient evidence of the requirements of all the elements and performance criteria
 - multiple smaller projects which together provide sufficient evidence of the requirements of all the elements and performance criteria.

- A third-party report, or similar, may be needed to testify to the work done by the individual, particularly when the project has been done as part of a project team.
- Assessment should use a real project where development of an initial pull system, or improvement of an existing pull system, occurs in an operational workplace.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with an organisation providing relevant environmental monitoring, management or technology services about performing the competency being assessed within the last twelve months.

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