



Australian Government

MSS405024 Apply the theory of constraints

Release: 1

MSS405024 Apply the theory of constraints

Modification History

Release 1. Supersedes and is equivalent to MSS405024A Apply the theory of constraints

Application

This unit of competency covers the skills and knowledge required to apply the theory of constraints. This unit applies to individuals who as part of their work role need to apply the theory of constraints to assist their organisation to maximise output from a capacity constrained process or system. The unit will normally be applied as part of an organisation's improvement strategy and in conjunction with other competitive systems and practices units.

The person will typically be a technician, manager or other person who works with others in the bringing of change to an organisation as part of a formal team or otherwise. The unit includes liaison and communication with others, as required.

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	Identify the system constraint and throughput	1.1	Identify goals and objectives of the organisation.
		1.2	Identify systems, processes and products to be examined.
		1.3	Determine throughput of steps within the system.
		1.4	Identify the capacity constrained process.
		1.5	Determine optimum throughput of capacity constrained

- process (drum).
- 1.6 Determine maximum system throughput based on the capacity constrained process.
- 2 **Optimise constraint throughput**
- 2.1 Determine optimum accumulation (buffer) before capacity constrained process.
- 2.2 Determine appropriate supply schedule and trigger (rope) for buffer.
- 2.3 Implement buffer and rope to match drum.
- 2.4 Monitor capacity constrained process and system to ensure optimum throughput.
- 2.5 Take required actions to minimise non-productive rate at capacity constrained process.
- 3 **Prioritise processes and resources to maximising output at the constraint**
- 3.1 Ensure operations and individuals in non-constrained locations protect buffers and prevent build-up of work in process except at buffer locations.
- 3.2 Identify operations that conflict with maximising constraint performance and replace with measures that help maximise throughput.
- 4 **Determine strategy to reduce capacity constraint**
- 4.1 Examine causes of the constrained capacity.
- 4.2 Develop possible ways of increasing system capacity.
- 4.3 Analyse and rank possible alternatives for increasing capacity.
- 4.4 Draft a strategy for increasing capacity of system.
- 4.5 Obtain required approval for response strategy.
- 5 **Implement a process of on-going improvement as**
- 5.1 Develop an implementation plan appropriate to the organisation.
- 5.2 Implement plan, as appropriate.

appropriate

- 5.3 Monitor implementation.
- 5.4 Modify implementation plan, as appropriate.
- 5.5 Identify next capacity constrained process and take action.

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.

Constraint

- internal or external to the organisation

(something that prevents or makes it harder for the organisation to achieve improved performance) includes one or more of:

- physical (e.g. equipment or material-based)
- process-based (e.g. inefficient or wrong processes/policies/logistics)
- people-based (e.g. poor training, communication)
- market-based (e.g. lack of demand).

Non-productive time includes one or more of:

- quality losses
- downtime
- other availability losses.

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 MSS405024 Apply the theory of constraints

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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 to apply the theory of constraints to a one (1) or more processes and to:

- identify the constraint
- optimise constraint throughput/output
- determine a strategy to reduce the constraint
- implement an improvement plan.

Knowledge Evidence

Must provide evidence that demonstrates sufficient knowledge to interact with relevant personnel and be able to use the theory of constraints to improve process throughput, including knowledge of:

- theory of constraints, including five focussing steps, types of constraint and methods of optimising process throughput
- operations of the process and process steps
- approaches to reducing the constraint
- strategic plans for reducing the constraint.

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 application of the theory of constraints to 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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