

---

## Overview

This unit covers the competences required for creating flexible business systems. It involves applying the principles and processes of creating flexible production and manpower systems to the chosen activity. This will include obtaining the schedule and batch size for the parts in the work area, and creating level schedules for those parts. The activities will require you to identify improvement opportunities, and waste which needs to be removed, in order to achieve Takt time and flow processing. You will also be required to produce a visual representation for identifying which resources do not meet the Takt time requirements. This would typically cover areas such as standard work in progress, consignment stocks, part routers, physical control signals, number of people required and their flexibility, and the rules and disciplines of the pull system.

Your responsibilities will require you to comply with organisational policy and procedures for the activities undertaken, and to report any problems that you cannot solve, or that are outside your responsibility, to the relevant authority. You will be expected to take full responsibility for your own actions within the activity, and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of your work, and will provide an informed approach to the techniques and procedures used. You will need to understand the principles and procedures of creating flexible production and manpower systems, and their application, in adequate depth to provide a sound basis for carrying out the activities to the required criteria.

Applying safe working practices will be a key issue throughout.

#### Performance criteria

- You must be able to:*
- P1 work safely at all times, complying with health and safety and other relevant regulations and guidelines
  - P2 apply the principles and processes of creating flexible production and manpower systems to the chosen activity
  - P3 obtain the schedule and batch size for the parts or materials in the work area
  - P4 create level schedules for the parts in the work area
  - P5 identify improvement opportunities, and waste which needs to be removed, in order to achieve Takt time and flow processing
  - P6 produce a local workforce flexibility matrix (skills matrix)
  - P7 produce a visual representation, identifying resources that do not meet the Takt time requirements
  - P8 implement a visually controlled system, based on the demand of subsequent processes for the chosen parts, and which improves the overall process effectiveness

#### Knowledge and understanding

*You need to know and understand:*

- K1 the health and safety requirements of the work area in which you are conducting the activity
- K2 the information required to create level schedules, load and capacity, Takt time and batch sizes
- K3 the meaning of 'level schedules', and how to create them
- K4 how to create a load and capacity diagram
- K5 Takt time, and how this is calculated
- K6 the application of standard work in progress
- K7 the application of visually controlled systems and signals, based on the demand of subsequent processes
- K8 the application of skills matrices
- K9 the application of consignment stocking
- K10 how to simplify working practices and reduce the human error risk
- K11 the consequences of introducing a new improved part/process/material router
- K12 problem solving and root cause analysis
- K13 the eight wastes (over-production, inventory, transport, over-processing, waiting time, operator motion, bad quality, failure to exploit human potential), and how to eliminate them
- K14 how to stabilise and then optimise equipment effectiveness
- K15 how to conduct a review of asset care/best practice effectiveness, and establish a robust routine of asset care and correct operation
- K16 the appropriate techniques that provides value to the customer (such as push-pull systems, single piece flow, just in time (JIT), Kanban, automation)
- K17 the techniques used to visually communicate the work done (such as level schedules, load and capacity diagrams, revised batch sizes, and Takt time)
- K18 how to lay out an effective workplace, utilising recognised techniques (such as cellular manufacturing incorporating parallel lines or U-shaped cells)
- K19 the extent of your own authority, and to whom you should report in the event of problems that you cannot resolve

### Additional Information

#### Scope/range related to performance criteria

You must be able to:

1. choose **three** different parts or materials in the work area, and calculate the following:
  - 1.1. workload
  - 1.2. capacity of resource (equipment, people)
  - 1.3. Takt time
2. produce a visual communication of the schedule, which includes:
  - 2.1. workload
  - 2.2. resource capacity
  - 2.3. Takt time for the work area
3. create a visually controlled system, based on the demand of subsequent processes for the chosen parts or materials, which includes **four** of the following:
  - 3.1. standard work in progress
  - 3.2. safety stocks
  - 3.3. part or material routers
  - 3.4. physical control signals
  - 3.5. rules and disciplines of the implemented control system

## **SEMBIT3-06** - SQA Unit Code F9JW 04

### Creating flexible production and manpower systems

---

<b>Developed by</b>	SEMTA
<b>Version number</b>	1
<b>Date approved</b>	December 2008
<b>Indicative review date</b>	December 2013
<b>Validity</b>	Current
<b>Status</b>	Original
<b>Originating organisation</b>	SEMTA
<b>Original URN</b>	06
<b>Relevant occupations</b>	Business, Administration and Law; Associate Professionals and Technical Occupations; Business management; Business and Finance Associate Professionals
<b>Suite</b>	Business Improvement Techniques Suite 3 2008
<b>Key words</b>	Engineering, business, improvement, techniques, creating, flexible production, Kanban, manpower, improvements, Takt time