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**ENGINEERING - ROBOTICS**  
**Program a robot using teach method**

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<b>level:</b>	<b>5</b>
<b>credit:</b>	<b>5</b>
<b>planned review date:</b>	August 2004
<b>sub-field:</b>	Mechanical Engineering
<b>purpose:</b>	People credited with this unit standard are able to: prepare for programming; program a robot using teach method; explain and apply modes for program testing; and correct faults, edit, save, and backup program.
<b>entry information:</b>	Open.
<b>accreditation option:</b>	Evaluation of documentation and visit by NZQA and industry.
<b>moderation option:</b>	A national moderation system of regional panels and assessor networks has been established by Competenz.
<b>special notes:</b>	Definitions <i>Organisational procedures</i> refer to documents that include: worksite rules, codes, and practices; equipment operating instructions; documented quality management systems; and health and safety requirements. <i>Robot</i> refers to a reprogrammable multifunction manipulator designed to move material, parts, tools or specialised devices through variable programmed motions for the performance of a variety of tasks. <i>Teach method</i> refers to programming a robot with a prescribed sequence of motions and activities using a teach pendant.

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*Teach pendant* refers to a device which uses computer logic and programmable memory to control robotics.  
*Dead-man's switch* refers to a controlling device allowing power to be connected only as long as the operator presses it appropriately.

### **Elements and Performance Criteria**

#### **element 1**

Prepare for programming.

#### **performance criteria**

- 1.1 Safety issues to be considered when teach programming are described in accordance with organisational procedures.  
  
Range: dead-man's switch, work envelope, machine/equipment integration, speed control, safety interlocks.
- 1.2 Program backup is described in terms of timing, memory device, and storage.
- 1.3 Teach pendant operation is described in terms of screen layout, operating modes, function keys, dead-man's switch.
- 1.4 Functional description of program to be executed is produced.

#### **element 2**

Program a robot using teach method.

#### **performance criteria**

- 2.1 Teach mode is activated and dead-man's switch energised.
- 2.2 Teach mode is set for movement and speed according to organisational procedures.  
  
Range: reference position, speed control, movement control, machine/equipment integration controls.

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2.3 Robot and integrated machinery/equipment are operated and moved to required positions and recorded for program.

Range: may include but is not limited to – insert, change, add comment, wait position, program save.

**element 3**

Explain and apply modes for program testing.

**performance criteria**

3.1 Explanations are given for the selection of step, manual, and automatic mode for program testing.

3.2 Step mode and reduced speed are set and program is checked for faults.

3.3 Manual mode and reduced speed are set and program is checked for faults.

3.4 Automatic mode is set and program is checked for faults.

**element 4**

Correct faults, edit, save and backup program.

**performance criteria**

4.1 Program faults are corrected.

Range: may include but is not limited to – change step, delete, add, wait time, open-close sequence.

4.2 Program optimisation method is applied in accordance with organisational procedures.

Range: one of – manual optimisation, automatic optimisation.

4.3 Program is saved to central processing unit.

4.4 Program is backed up from central processing unit in accordance with organisational procedures.

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**Comments on this unit standard**

Please contact the Competenz [j.broadhead@competenz.org.nz](mailto:j.broadhead@competenz.org.nz) if you wish to suggest changes to the content of this unit standard.

**Please Note**

Providers must be accredited by the Qualifications Authority or a delegated inter-institutional body before they can register credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for providers wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

This unit standard is covered by AMAP 0013 which can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.