

## Short course - Teaching Plan

**Course:** Installing and Commissioning Commercial Water Heaters

**Level:** 4

**Duration of Workshop:** 8 hours (8 am to 4 pm)

**Trainer(s):** Simon Goodlud/David Ryan

### Learning outcomes:

1. Identify and describe commercial hot water heaters and flues.
2. Demonstrate knowledge of installing, commissioning, and maintaining commercial hot water heaters.
3. Describe the purpose of hot water heater components.
4. Demonstrate knowledge of fault finding and rectification of components in the commercial hot water heaters.
5. Describe safety requirements for commercial hot water heaters.

Time	Lead	Content/ Activities	Resources
Start time: 8 am			
5 minutes	David	Opening Karakia	Karakia (slide on ppt)
15 minutes	Simon/David	Whakawhanaungatanga - Introductions around the room - what you hope to get out of the day OR share a (brief) first encounter with commercial hot water heaters.	
5 minutes	Simon	Provide an overview of the workshop and topics to be covered. Provide an overview of the learning outcomes.	Copies of course descriptor. Learning outcomes on whiteboard visible throughout the day.

30 minutes	Simon	<b>Activity 1: Commercial hot water heaters</b> Ask students what are commercial hot water heaters. Ask one student to note the feedback on the whiteboard. Link students' feedback to describe different types of commercial hot water heaters and flues.	Whiteboard and markers; handouts including diagrams and schematics
30 minutes	David	<b>Activity 2: Manufacturer instructions and standards</b> Provide the activity handouts. Student to work in pairs to determine the location of installing commercial hot water heaters by interpreting manufacturer instructions and standards. Ask them to report back their findings. Provide feedback and clarify doubts.	Handouts of manufacturer instructions and standards.
30 minutes	David	Explain hot water heaters commissioning procedure. Use examples to reinforce the procedure. <b>Activity 3: Commissioning sheet checklist</b> Provide the activity handouts. In pairs students to complete commissioning checklist. Ask them to report back their findings. Give feedback and clarify and doubts.	Handouts of commissioning sheet checklist
(10 to 10.30 am)		Tea Break	
30 minutes	Simon	<b>Activity 4: Maintenance of heaters</b> Ask students what is the purpose of maintaining commercial hot water heaters. Ask one student to note the feedback on the whiteboard. Link students' feedback to explain the purpose of maintenance.	Whiteboard and markers
30 minutes	Simon	<b>Activity 5: Maintenance checklist</b>	Handouts of maintenance checklist

30 minutes	Simon	<p>Provide activity handouts. In pairs students to complete maintenance checklist. As them to report back their findings. Give feedback and clarify doubts.</p> <p><b>Activity 6: Installation/safety scenario(s)</b> Provide activity handouts. Students to work in pairs. Ask them to read the scenario and identify the unsafe/non- compliance issues from the scenario(s). Report back their findings. Give feedback and clarify doubts.</p>	Handouts of installation/safety scenario(s)
20 minutes	Simon	<p>Explain the subsequent safety requirements procedures.</p> <p><b>Activity 7: Components</b> Students work in pairs. Hand out the set of cut ups cards. Have students race to put the cut ups cards in the order (i.e. match the components pictures to the description). Move around the to check the progress. Student to report back the findings. Check the answer and clarify. Provide more description on the components if required.</p>	Cut ups cards (i.e. pictures and description of components)

(12.30 to 1.30)			
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Lunch Break			
(1.30 pm to 4 pm) 10 minutes	David	(Student to assemble at Mataaho) Give health and safety instruction for workshop at Mataaho	Mataaho, personal safety clothing including footwear
90 minutes	David/Simon	<b>Activity 8: Disassemble &amp; Reassemble</b> Students to work in groups (i.e. 3 to 4). Ask them to disassemble heater components and reassemble them. <i>(Please note: This is a practical skill development activity to reinforce the component knowledge covered in activity 7).</i>  At same time demonstrate testing practice. Students to watch the demonstration.	Hot water heater components
40 minutes	David/Simon	<b>Outside the Mataaho</b> Demonstrate the hot water heater operation and simulated faults (i.e. flame failure, no ignition, over heating) and how to rectify them. Students to observe the demonstration and ask questions to clarify the principles.	Hot water heater
15 minutes	David/Simon	Summarise the topics covered. Ask questions to check understanding. Answer any questions.	
5 minutes	David	Closing Karakia	