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# SURGICAL INSTRUMENTS MANUFACTURING TECHNICIAN



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## TRAINER GUIDE

National Vocational Certificate Level 2

Version 1 - March, 2019



Implemented by  
**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH

**Published by**

National Vocational and Technical Training Commission  
Government of Pakistan

**Headquarter**

Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan  
www.navttc.org

**Responsible**

Director General Skills Standard and Curricula, National Vocational and Technical Training Commission  
National Deputy Head, TVET Sector Support Programme, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

**Layout & design**

SAP Communications

**Photo Credits**

TVET Sector Support Programme

**URL links**

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This document has been produced with the technical assistance of the TVET Sector Support Programme, which is funded by the European Union, the Federal Republic of Germany and the Royal Norwegian Embassy and has been commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in close collaboration with the National Vocational and Technical Training Commission (NAVTTTC) as well as provincial Technical Education and Vocational Training Authorities (TEVTAs), Punjab Vocational Training Council (PVTC), Qualification Awarding Bodies (QABs) and private sector organizations.

**Document Version**

March, 2019

**Islamabad, Pakistan**

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## Introduction

Competence-based training helps to bridge the gap between what is taught in training and what tasks will be performed on the job. Training trainees to perform actual job functions helps to ensure that future front-line workers have the skills, knowledge and abilities required to perform their jobs properly, safely and effectively. In addition to competence-based training, assessment based on the performance of actual work competencies helps to ensure that:

- trainees are performing their work tasks as safely as possible
- performance gaps are recognized prior to serious incidents
- training can be implemented to improve competence.

There are significant benefits to competence-based training:

### 1. Cost effectiveness

Since training activities and assessments in a competence-based approach are goal-oriented, trainers focus on clearly defined areas of skills, knowledge and understanding that their own industry has defined in the competence standards. At the same time, trainees are more motivated to learn when they realize the benefits of improved performance.

### 2. Efficiency

The transfer gap between the training environment and working on the job is reduced substantially in a competence-based approach. This is because training and assessment are relevant to what needs to be done on the job. As a result, it takes less time for trainees to become competent in the required areas. This, in turn, contributes to improved efficiency where training and assessment are concerned.

### 3. Increased productivity

When trainees become competent in the competence standards that their own industry has defined, when they know what the performance expectations are and receive recognition for their abilities through successful assessments, they are likely to be more motivated and experience higher job satisfaction. The result is improved productivity for organizations. The communication and constructive feedback between future employers and employees will improve as a result of a competence-based approach which can also increase productivity.

### 4. Reduced risk

Using a competence-based approach to training, development, and assessment, employers are able to create project teams of people with complementary skills. A trainee's record of the skills, knowledge and understanding relating to the competence standards they have achieved can be used by a future employer to identify and provide further relevant training and assessment for new skills areas. Competence standards can shape employee development and promotional paths within an organization and give employees the opportunity to learn more competencies beyond their roles. It can also provide organizations with greater ability to scale and flex as needed, thereby reducing the risk they face.

## 5. Increased customer satisfaction

Employees who have been trained and assessed using a competence-based approach are, by the definition of the relevant competence standards, able to perform the required tasks associated with a job. The knock-on effect is that, in service-related industries, they are able to provide high service levels, thereby increasing customer satisfaction. In production or manufacturing industries, they are able to work closely to industry standards in a more effective and efficient way.

### Lesson plans

This manual provides a series of lesson plans that will guide delivery of each module for the *Surgical Instruments technician* qualification. It is important for trainers to be flexible and be ready to adapt lesson plans to suit the context of the subject and the needs of their trainees.

Good teachers acknowledge that CBT means each and every trainee in the class learns at a different speed. The good teacher is prepared to throw aside the day's lesson plan and do something different (and unplanned) for the class even if it means 'writing' a lesson plan for each trainee to match their learning pace for that day or week.

Learning by doing is different from learning theory and then applying it. To learn to do something, trainees need someone looking over their shoulder saying 'it's not quite like that, it's like this', 'you do it like this because ...', or even 'tell me why did you choose to do it like this?'

In this way, trainees learn that theoretical knowledge is meaningless if it is not seen in the context of what they are doing. In other words, if a trainee doesn't know why something is being done, they will not do it competently (skills underpinned by knowledge = competent performer).

This is how a surgical instruments technician acquires a practical grasp of the standards expected. It's not by learning it in theory, but because those standards are acquired through correction by people who show what the standards are, and correct the trainees where they do not meet those standards, and where they repeat its correction until they have internalized those standards.

### Demonstration of skill

Demonstration or modeling a skill is a powerful tool used in vocational training. The instructions for trainers for demonstration are as under:

- a) Read the procedure mentioned in the Trainer Guide for the relevant Learning Unit before demonstration.
- b) Arrange all tools, equipment and consumable material which are required for demonstration of a skill.
- c) Practice the skill before demonstration to trainees, if possible.
- d) Introduce the skill to trainees clearly at the commencement of demonstration.
- e) Explain how the skill relates to the skill(s) already acquired and describe the expected results or show the objects to trainees.
- f) Carry out demonstration in a way that can be seen by all trainees.
- g) Use the same tools and materials that the learner's will be using.
- h) Go through EACH of the steps involved in performing the skill.
- i) Go SLOWLY - describe each step as it is completed.
- j) Encourage the learner's to move around and watch what you are doing from a number of different angles.
- k) Identify critical or complex steps, or steps that involve safety precautions to be followed.

- l) Explain theoretical knowledge where applicable and ask questions to trainees to test their understanding.
- m) Try to involve the learner's: Ask them questions about why they think the process may work that way.
- n) Repeat critical steps in demonstration, if required.
- o) Summarize the demonstration by asking questions to trainees.

Involvement in the process (actively seeing) is important at this stage. When you work on getting involved, getting people to participate, you make them a part of what is happening. Questions for clarification or explanation are important throughout the demonstration. It is up to the learner's to ask questions about things they do not understand, but it is also important for trainers to seek out and elicit questions from learner's. A trainer may need to do repeated demonstrations of difficult or complex skills.

Remember that the learner's will learn a lot from your demonstration - and not just the demonstration itself. Learner's will learn about how to perform the skills, but they will also learn from watching demonstrations how trainers treat the tools or materials and how they follow safety procedures.

After the demonstration, it is important to again seek out questions - be sure all questions are answered. The trainer should ask the learner's if they are ready to try the skill. If not, there may be a need for recycling the demonstration (or part of it), and clarifying some of the information.

## Overview of the program

<b>Course:</b> NVQ Certificate Level 2 in SURGICAL INSTRUMENT MANUFACTURING TECHNICIAN	<b>Total Course Duration:</b> 800 hours
<b>Course Overview:</b>	
The surgical instrument manufacturing technician program is to engage young people with a program of development that will provide them with the knowledge, skills and understanding to start this career in Pakistan. The program has been developed to address specific issues, such as the national, regional and local cultures, the manpower availability within the country, and meeting and exceeding the needs and expectations of their customers.	

Modules	Learning Units	Duration
<b>Module 1:</b> 072200880 Perform Grinding	<b>LU1:</b> Perform wheel grinding <b>LU2:</b> Perform filing <b>LU3:</b> Perform drilling	70 hours

Modules	Learning Units	Duration
<b>Module 2: 072200881</b> Assemble Surgical Instruments	<b>LU1:</b> Perform fastening <b>LU2:</b> Apply setting <b>LU3:</b> Inspect quality of instruments	60 hours
<b>Module 3: 072200879</b> Perform Polishing	<b>LU1:</b> Prepare workstation for polishing <b>LU2:</b> Apply initial polishing <b>LU3:</b> Apply electrochemical polishing <b>LU4:</b> Apply sand blasting <b>LU5:</b> Perform Ultrasonic Cleaning <b>LU6:</b> Perform passivation <b>LU7:</b> Perform final polishing	170 hours
<b>Module 4: 072200882</b> Perform Packing	<b>LU1:</b> Inspect quality of instruments <b>LU2:</b> Perform Laser Marking <b>LU3:</b> Perform stamping <b>LU4:</b> Perform etching <b>LU5:</b> Perform final packing	80 hours



Lesson Plan Template

<b>Time</b>	<b>Content</b>	<b>Tutor's activity</b>	<b>Learner's activity</b>	<b>Resources</b>	<b>Outcomes Assessment /</b>
	Introduction				
<b>BREAK</b>					
	Conclusion				

### Lesson Plan Template - EXAMPLE

Time	Content	Tutor's activity	Learner's activity	Resources	Outcomes/ Assessment
	Introduction	State the learning objectives for this lesson (prepare, surgical instruments manufacturing process and see how to make a finish products). Link this to the previous lesson (various types of process that can be use on a specific machine including using of machines) and ask questions from learner's to check their prior knowledge and to arouse the interest and motivation	Answer questions about the previous lesson Ask questions as required about the learning objectives for this lesson	Flip chart or similar listing the learning objectives for this lesson	Questions and answers
	Presentation	Introduce and explain surgical manufacturing process and Highlight any pre-preparation methods. Use some surgical instruments as samples for better explanation	Make notes for making your presentation more effective	Prepare workstations and setting machines/press Appropriate preparation and manufacturing process equipment Personal protective equipment's	Questions and answers
<b>BREAK</b>					

<b>Time</b>	<b>Content</b>	<b>Tutor's activity</b>	<b>Learner's activity</b>	<b>Resources</b>	<b>Outcomes/ Assessment</b>
	Practical	Observe learner's practical activities and support as appropriate	Practice skills in using equipment and multi-stage methods independently to prepare, process and present complex manufacturing process methods	Appropriate surgical manufacturing process and machine operating procedure Working instruction Learner's own notes Appropriate preparation machining process Personal protective equipment	Observation Questions and answers Self-assessment Peer assessment
	Conclusion	Lead feedback session with discussion and questions and answers Ask learner's to complete self-assessment form	Provide feedback on the activity Complete self-assessment form Ask questions	Complete manufacturing process performed by the learner's	Questions and answers Self-assessment forms Complete complex process performed by the learner's

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Module-1

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**Module 1: 072200880 Perform Grinding**

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<p><b>LU1:</b> Perform wheel grinding</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Mount grinding wheel on bench grinding machine as per job requirement</li> <li>• Perform dressing of grinding wheel using appropriate dresser if required</li> <li>• Grind the requirement to remove excess material as per product requirement</li> <li>• Control size of instrument during and after grinding using appropriate gauges</li> </ul> <p>Begin this session with an illustrative presentation about the advanced skills in wheel grinding. Include examples of:</p> <ul style="list-style-type: none"> <li>• What wheel grinder and equipment are needed</li> <li>• The benefits of assembling wheel grinding.</li> <li>• The wheel types</li> <li>• The grinding procedure.</li> <li>• Safety precaution</li> <li>• The principles of wheel grinding</li> <li>• The benefits of wheel grinding</li> <li>• Wheel types</li> <li>• How to dressing the grinding wheel</li> <li>• Problems of the wheel grinding</li> </ul> <p>Arrange learner's into small groups. Ask each group to discuss the importance of being able to independently attach wheel grinding and equipment to prepare present <b>THREE</b> situations that illustrate their discussion.</p> <p>Take verbal feedback from each group.</p> <p>Prepare either:</p>	<p>Practice / realistic workshop</p> <p>Wheel grinding, dresser</p> <p><b>EITHER</b></p> <p>Training company workshop.</p> <p><b>OR</b></p> <p>Access to a commercial environment or premises for training purposes</p>	<p>Learner's guide</p> <p>Videos</p> <p>Handouts on key issues relating to the ability to independently attach the wheel and equipment to prepare.</p>

	<ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
<p><b>LU2:</b> Perform filing</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Select appropriate file (size and shape) according to job finish requirement</li> <li>• Clamp the instrument using appropriate vice</li> <li>• File the instrument according to required shape</li> <li>• Control shape and size of instrument during and after filing using appropriate gauges</li> </ul> <p>Invite an experienced grinding and filing from industry to</p>	<p>Practice / realistic workshop</p> <p><b>EITHER</b> Training workshop.</p> <p><b>OR</b></p>	<p>Learner's guide Videos Illustrations of equipment taken from catalogues or the internet Photographs of using multi-stage methods to prepare complex filling method</p>

	<p>deliver a presentation to trainees on using equipment and multi-stage methods independently to prepare complex grinding and filling process. Ask the invited production process manufacturer to address the following key points:</p> <ul style="list-style-type: none"> <li>• preparation requirements</li> <li>• sequencing the appropriate multi-stage preparation methods correctly</li> <li>• the importance of using the correct tools and equipment</li> <li>• Types of filling and perform filling</li> <li>• Problem of the filing</li> <li>• quality requirements following preparation for complex filling</li> <li>• working independently</li> <li>• compliance with relevant regulations and safety</li> </ul> <p>After the presentation, invite trainees to pose questions to the invited production process that will clarify their understanding.</p> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart.</p>	<p>Access to a commercial environment or premises for training purposes</p>	
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	<p>Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
<p><b>LU3:</b> Perform drilling</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Prepare pedestal drill machine using drill bits and fixtures according to job requirement</li> <li>• Sharpen the drill bit using tool grinder if required</li> <li>• Clamp the workpiece on drill machine using fixtures</li> <li>• Drill holes in workpiece as per required sizes</li> <li>• Perform countersink on drilled holes where required</li> <li>• Perform reaming in drilled holes where required</li> <li>• Perform tapping in drilled holes where required</li> <li>• Control quality of instrument during and after drilling using appropriate gauges</li> <li>• Prepare report of completed work</li> </ul> <p>Deliver an illustrative presentation on the use of equipment / drill bits and multi-stage methods independently to working on drill machine and finish complex drilling. Ensure that the presentation addresses the following points:</p> <ul style="list-style-type: none"> <li>• The effect of different and multi-stage drilling</li> </ul>	<p>Practice / realistic workshop</p> <p>Pillar drill, vice, Vernier caliper</p> <p><b>EITHER</b> Training company workshop.</p> <p><b>OR</b> Access to a commercial environment or premises for training purposes</p>	<p>Learner's guide</p> <p>Videos</p> <p>Illustrations of equipment taken from catalogues or the internet</p> <p>Photographs or videos of drilling using multi-stage methods to surgical instruments.</p>



	<p>processes on different material and their process value</p> <ul style="list-style-type: none"> <li>• Prepare the workplace</li> <li>• Pillar drill machine types, speed setting.</li> <li>• drilling requirements</li> <li>• the importance of using the correct drilling and equipment</li> <li>• quality requirements for drilling</li> <li>• working independently</li> </ul> <p>Ask the learner's group to work in pairs to discuss the key points of using equipment and multi-stage methods independently to drilling. Following the pairs discussion, link two pairs together and ask each pair to share their findings.</p> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional</p>		
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	<p>points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
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Module-2

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Module 2: 072200881 Assemble Surgical Instruments			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<b>LU1:</b> Perform fastening	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Drill holes in work pieces at specified areas</li> <li>• Use pin grinder at narrow areas if required</li> <li>• Assemble the instrument components by riveting where applicable</li> <li>• Tap drilled holes and assemble the surgical instrument components using screws where applicable</li> <li>• Check functionality and quality of surgical instruments and prepare a report</li> </ul> <p>Begin this session with an illustrated presentation on preparing workstation, and finishing complex surgical instruments. Ensure that the presentation addresses the following points, including demonstrations of equipment, preparation and fastening methods where appropriate:</p> <ul style="list-style-type: none"> <li>• Prepare the workplace.</li> <li>• How to perform fastening</li> <li>• Fastening methods and techniques</li> <li>• Knowledge and understanding the measuring instruments</li> </ul> <p>Arrange a question and answer session to clarify trainee understanding.</p> <p>To prepare for the practical sessions, allocate each trainee one instrument for understanding the process and ask them to produce an agreed number of portions (this may vary depending on the surgical instruments and the complexity of</p>	Classroom or realistic workshop	Learner's guide Videos Allocated Fastening process Videos Work procedures, checklists, work schedules, maintenance schedules; records Personal productivity Equipment (PPE), (appropriate to the work), for example aprons, gloves, mask, footwear

	<p>preparing the workstation). Check that each trainee understands their task.</p> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
	<p>Trainees need to practice their skills in assembling surgical products and equipment to prepare, complex products in a real or realistic environment.</p>		

<p><b>LU2:</b> Apply setting</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Adjust alignment of surgical instruments using mallet hammer</li> <li>• Grind / file the surgical instruments where required</li> <li>• Check functionality of surgical instruments and prepare a report</li> </ul> <p>Begin this session with an illustrated presentation on preparing workstation, and finishing complex surgical instruments. Ensure that the presentation addresses the following points, including demonstrations of equipment, preparation and fastening methods where appropriate:</p> <p>Arrange a question and answer session to clarify trainee understanding.</p> <ul style="list-style-type: none"> <li>• How to assemble the surgical instruments</li> <li>• Setting techniques and methods</li> <li>• How to perform the filing</li> <li>• How to check the measurement</li> <li>• How to read the drawings</li> </ul> <p>To prepare for the practical sessions, allocate each trainee one instruments for understanding the process and ask them to produce an agreed number of portions (this may vary depending on the surgical instruments and the complexity of preparing the workstation). Check that each trainee understands their task.</p> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the</p>	<p>Classroom or realistic workshop</p> <p>Hammer, files, Vernier caliper, steel role,</p>	<p>Learner's guide</p> <p>Videos</p> <p>Allocated setting process</p> <p>Videos</p> <p>Work procedures, checklists, work schedules, maintenance schedules; records</p> <p>Working instruction</p> <p>Personal productivity Equipment (PPE), (appropriate to the work), for example aprons, gloves, mask,</p>
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	<p>key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
<p><b>LU3:</b> Inspect quality of instruments</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Gather technical sheets, drawings, samples etc.</li> <li>• Arrange required measuring tools and gauges for quality inspection</li> <li>• Check setting of surgical instruments as per specification sheet or sample</li> <li>• Measure sizes and shapes of surgical instruments using gauges</li> <li>• Prepare quality inspection report</li> </ul> <p>Trainees need to practice their skills in using equipment and multi-stage methods independently to check the process and inspect. in a real or realistic environment.</p> <p>After the practical sessions are completed, lead a feedback session. Ask learner's to complete a self-assessment form on their ability to prepare, inspection and documents. Ask</p>	<p>Practice or realistic workshop</p>	<p>Learner's guide Videos Allocated inspection process Videos Work procedures, checklists, work schedules, maintenance schedules; records Personal productivity Equipment (PPE), (appropriate to the work), for example aprons, gloves, mask, footwear</p>

	<p>questions to confirm their understanding. Provide opportunities for trainees to ask their own questions.</p> <ul style="list-style-type: none"> <li>• How to inspect the instruments</li> <li>• How to check the major faults and clear the points</li> <li>• How to read the drawings</li> <li>• How to perform the inspect complex instruments</li> <li>• How to control the quality</li> </ul> <p>To prepare for the practical sessions, allocate each trainee one instruments for understanding the process and ask them to produce an agreed number of portions Check that each trainee understands their task.</p> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have</p>		
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	<p>covered all the key topics.</p> <p>End the group discussion activity with a summary.</p> <p>Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
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Module-3

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Module 3: 072200879 Perform Polishing			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<b>LU1:</b> Prepare workstation for polishing	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>Identify polishing and cleaning processes required for the instrument using work instructions / specification sheets</li> <li>Arrange material, tools and gauges for the identified polishing and cleaning processes</li> <li>Check quality of work pieces before polishing</li> </ul> <p>Begin this session with an illustrated presentation on preparing the workstation and arrange all equipment. Ensure that the presentation addresses the following points, including demonstrations of equipment, preparation and polishing methods where appropriate:</p> <ul style="list-style-type: none"> <li>Belts Types</li> <li>Polishing Types</li> <li>Polishing material</li> <li>Lathe polish process</li> <li>How to prepare the workplace</li> <li>Polishing method and techniques</li> </ul> <p>Arrange a question and answer session to clarify trainee understanding.</p> <p>To prepare for the practical sessions, allocate each trainee perform polishing for complex instruments. Check that each trainee understands their task.</p>	Classroom or practice <ul style="list-style-type: none"> <li>Lathe polish</li> <li>Polishing material</li> <li>Polishing belt</li> </ul>	Learner's guide Videos Allocated process Videos Work procedures, checklists, work schedules, maintenance schedules; records Personal productivity Equipment (PPE), (appropriate to the work), for example aprons, gloves, mask, footwear

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>Prepare either:</p> <ul style="list-style-type: none"><li>• A flip chart</li><li>• A PowerPoint slide</li><li>• A handout</li></ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to</p>		

**Module 3: 072200879 Perform Polishing**

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	create a handout to distribute to all learners.		
<p><b>LU2:</b> Apply initial polishing</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Load leather wheel and polishing belt on polishing lathe</li> <li>• Polish surgical instrument as per required surface finish</li> <li>• Control the quality of polishing using measuring instruments and gauges</li> <li>• Handle and store polished instruments to avoid any surface damage</li> </ul> <p>Trainees need to practice their skills in using equipment and multi-stage methods independently to prepare complex instruments, in a real or realistic environment.</p> <ul style="list-style-type: none"> <li>• How to prepare the polishing workstation</li> <li>• Understanding the polishing material</li> <li>• Understanding the polishing types</li> <li>• How to perform the polishing</li> <li>• How to start the polish</li> <li>• How much process include in polishing process?</li> </ul>	<p>Practice <b>EITHER</b> Training company workshop. <b>OR</b> Access to a commercial environment or premises for training purposes</p>	<p>Learner's guide Videos Allocated process Videos Work procedures, checklists, work schedules, maintenance schedules; records Personal productivity Equipment (PPE), (appropriate to the work), for example aprons, gloves, mask, footwear</p>

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>Arrange a question and answer session to clarify trainee understanding.</p> <p>To prepare for the practical sessions, allocate each trainee perform polishing for complex instruments Check that each trainee understands their task.</p> <p>Prepare either:</p> <ul style="list-style-type: none"><li>• A flip chart</li><li>• A PowerPoint slide</li><li>• A handout...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</li></ul> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process.</p>		

Module 3: 072200879 Perform Polishing			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	Continue until you have covered all the key topics. End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.		
<b>LU3:</b> Apply electrochemical polishing	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Prepare chemical solution in bath for electrochemical polishing</li> <li>• Dip instruments into container of the electrochemical bath</li> <li>• Perform electrochemical polishing using required temperature, time and current</li> <li>• Rinse instruments with clean water to remove traces of chemicals</li> <li>• Wash the instruments in dilute solution of sulphuric acid according to material sensitivity</li> <li>• Wash the instrument in clean water to remove traces of sulphuric acid</li> <li>• Wash the instruments in hot water</li> <li>• Dry instruments with wooden husk completely</li> <li>• Inspect the instrument according to specifications</li> <li>• Handle and store polish instruments to avoid any surface damage</li> </ul> <p>Trainees need to practice their skills in using equipment and multi-stage methods independently to prepare complex instruments, in a real or realistic</p>	<p>Practice EITHER Training company workshop. OR Access to a commercial environment or premises for training purposes</p>	<p>Learner's guide Videos Allocated electrochemical process Own notes on electrochemical and finishing Work procedures, checklists, work schedules, maintenance schedules; records Personal productivity Equipment (PPE), (appropriate to the work), for example aprons, gloves, mask, footwear</p>

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>environment.</p> <ul style="list-style-type: none"> <li>• How to prepare the polishing workstation</li> <li>• Understanding the polishing material</li> <li>• Understanding the polishing types</li> <li>• How to perform the polishing</li> <li>• How to start the polish</li> <li>• How much process include in polishing process?</li> </ul> <p>Arrange a question and answer session to clarify trainee understanding.</p> <p>To prepare for the practical sessions, allocate each trainee perform polishing for complex instruments</p> <p>Check that each trainee understands their task.</p> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their</p>		



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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
<p><b>LU4:</b> Apply sand blasting</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Prepare sand blasting machine for operation as per requirements</li> <li>• Place / hold instruments inside sand blasting machine and perform operation as per required surface finish</li> <li>• Inspect the instrument according to specifications</li> <li>• Handle and store polished instruments to avoid any surface damage</li> </ul> <p>Trainees should practice to enhance his skill so that he will be able to perform sand blasting process</p>	<p>Practice <b>EITHER</b> Training workshop. <b>OR</b> Access to a commercial premises for training purposes</p> <p>company</p>	<p>Learner's guide Videos Allocated sand blasting process Own notes on presenting sand blast process Work procedures, checklists, work schedules, maintenance schedules; records Personal productivity Equipment (PPE), (appropriate to the work), for example aprons, gloves, mask, footwear</p>

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>independently, in a real or realistic environment.</p> <p>After the practical sessions are completed, lead a feedback session. Ask learner's to complete a self-assessment form on their ability to work on machine, and sand blasting process. Ask questions to confirm their understanding. Provide opportunities for trainees to ask their own questions.</p> <ul style="list-style-type: none"> <li>• How to prepare the sand blast machine workstation.</li> <li>• How to perform the sand blasting process</li> <li>• Understanding the safety during sand blasting</li> <li>• Understating the electrochemical material.</li> </ul> <p>Arrange a question and answer session to clarify trainee understanding.</p> <ul style="list-style-type: none"> <li>• To prepare for the practical sessions, allocate each trainee perform polishing for complex instruments Check that each trainee understands their task.</li> </ul> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to</p>		

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
<p><b>LU5:</b> Perform Ultrasonic Cleaning</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Fill cleaning solution in the ultrasonic cleaning machine bath up to required level</li> <li>• Set temperature of ultrasonic cleaning machine as per product requirements</li> <li>• Arrange instruments in a hanger or tray</li> <li>• Perform chemical fuming on instruments</li> </ul>	<p>Practice <b>EITHER</b> Training company workshop. <b>OR</b> Access to a commercial environment</p>	<p>Learner's guide Videos Allocated ultrasonic process Own notes on presenting ultrasonic process Work procedures, checklists, work schedules, maintenance schedules; records</p>

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>for specified time duration</p> <ul style="list-style-type: none"> <li>• Dip instruments in chemical for specified time duration</li> <li>• Shower instruments with chemical while holding above the machine bath</li> <li>• Control the quality of instruments as per requirements</li> <li>• Handle and store instruments to avoid any surface damage</li> </ul> <p>Trainees should practice to enhance his skill so that he will be able to perform sand blasting process independently, in a real or realistic environment.</p> <p>After the practical sessions are completed, lead a feedback session. Ask learner's to complete a self-assessment from on their ability to working on machine, and ultrasonic process. Ask questions to confirm their understanding. Provide opportunities for trainees to ask their own questions.</p> <ul style="list-style-type: none"> <li>• How to prepare the ultrasonic cleaning workstation.</li> <li>• Understanding the Ultrasonic cleaning process.</li> <li>• Understating the ultrasonic chemical.</li> <li>• Understanding the importance of ultrasonic cleaning process</li> </ul> <p>Arrange a question and answer session to clarify trainee understanding.</p>	<p>premises for training purposes</p>	<p>Personal productivity Equipment (PPE), (appropriate to the work), for example aprons, gloves, mask, footwear</p>

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<ul style="list-style-type: none"><li>• To prepare for the practical sessions, allocate each trainee perform polishing for complex instruments Check that each trainee understands their task.</li></ul> <p>Prepare either:</p> <ul style="list-style-type: none"><li>• A flip chart</li><li>• A PowerPoint slide</li><li>• A handout</li></ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the</p>		

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>next key topic. Repeat the discussion process. Continue until you have covered all the key topics. End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
<p><b>LU6:</b> Perform passivation</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Boil water in required quantity as per work instructions</li> <li>• Inspect instruments for rusting</li> <li>• Fill bath with passivation chemical at required level</li> <li>• Dip the instruments in passivation chemical for specified time</li> <li>• Rinse the instruments in water and dry in hanging position above the passivation bath</li> <li>• Check the quality of instruments as per requirements</li> </ul> <p>Trainees need to practice their skills in independently present perform, in a real or realistic environment.</p> <ul style="list-style-type: none"> <li>• How to perform the passivation process</li> <li>• How to check a passivation cleaning</li> <li>• How to prepare the passivation chemical</li> </ul> <p>After the practical sessions are completed, lead a feedback session. Ask learner's to complete a self-assessment form on their</p>	<p>Practice <b>EITHER</b> Training company workshop. <b>OR</b> Access to a commercial environment or premises for training purposes</p>	<p>Learner's guide Videos Allocated passivation process Own notes on presenting passivation process</p>

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>ability to working on machine, and ultrasonic process. Ask questions to confirm their understanding. Provide opportunities for trainees to ask their own questions.</p> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process.</p>		

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	Continue until you have covered all the key topics. End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.		
<b>LU7:</b> Perform final polishing	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Load leather wheel and polishing belt on polishing lathe</li> <li>• Polish instruments as per required surface finish by using specified emery grain belts (i.e.200,300 &amp; 400)</li> <li>• Use dull brush, buffing or water sand finishing for required final finishing</li> <li>• Control the quality of polishing as per requirements</li> <li>• Handle and store polished instruments to avoid any surface damage</li> <li>• Prepare report of completed work</li> </ul> <p>Trainees need to practice their skills in independently present perform, in a real or realistic environment.</p> <ul style="list-style-type: none"> <li>• How to perform final polishing process</li> <li>• Which equipment is used in final polishing?</li> <li>• How to prepare the polishing workstation</li> <li>• Understanding the polishing material</li> <li>• Understanding the polishing types</li> <li>• How to perform the polishing</li> </ul>	Practice <b>EITHER</b> Training workshop company	Learner's guide Videos Allocated final polishing process Own notes on presenting polishing process



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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<ul style="list-style-type: none"> <li>• How to start the polish</li> <li>• How much process include in polishing process?</li> </ul> <p>After the practical sessions are completed, lead a feedback session. Ask learner's to complete a self-assessment form on their ability to working on machine, and ultrasonic process. Ask questions to confirm their understanding. Provide opportunities for trainees to ask their own questions.</p> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole</p>		

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<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		

# SURGICAL INSTRUMENTS MANUFACTURING TECHNICIAN



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Module-4

TRAINER GUIDE

National Vocational Certificate Level 2

Version 1 - March, 2019

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Module 4: 072200882 Perform Packing			
Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
<b>LU1:</b> Inspect quality of instruments	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Prepare inspection workstation including measuring and inspection tools</li> <li>• Select appropriate inspection sample size as per customer requirements</li> <li>• Measure and record sizes of instruments</li> <li>• Check functionality of the instruments</li> <li>• Inspect surface finish as per finished product requirements</li> <li>• Mark all non-conformances on inspected product and send to relevant department for necessary measures</li> <li>• Handle instruments with care to avoid any surface damage</li> <li>• Store inspected products on instrument tray and update tag (bin card, tray card, process travel card etc.) for next process</li> <li>• Prepare inspection report in prescribed format</li> </ul> <p>Begin this session with an illustrated presentation on preparing, final inspection and packing material use. Ensure that the presentation addresses the following points, including demonstrations of equipment, preparation and inspection methods where appropriate:</p> <ul style="list-style-type: none"> <li>• Inspect process and arrange the equipment</li> <li>• Final inspection process</li> <li>• How to manage the critical points</li> </ul>	Classroom or practice in workshop	Learner's guide Videos Illustrations from catalogues or drawing equipment used to professional quality inspector. Uniform according to job requirements, (appropriate to the organization) Quality management (QMS) standards, procedure. Work area log to record injuries and illnesses Check process traveler card (PTC) Understanding the work instructions

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<ul style="list-style-type: none"> <li>• Knowledge and understanding of QMS system</li> <li>• Understanding the inspection process</li> </ul> <p>Arrange a question and answer session to clarify trainee understanding.</p> <p>To prepare for the practical sessions, each trainee inspection process and ask them to manager</p> <p>Check that each trainee understands their task.</p> <p>Trainees need to practice their skills in assembling and equipment to prepare, in a real or realistic environment.</p> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group.</p>		

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified. Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
<p><b>LU2:</b> Perform Laser Marking</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Load marking design in machine software and make necessary adjustments</li> <li>• Prepare laser marking machine (adjust laser head height, bed position, frequency, color, current etc.)</li> <li>• Mount jigs / fixtures on machine bed in appropriate position</li> <li>• Mark design on instruments using laser marking machine</li> <li>• Control quality of laser marking for size, position and color</li> <li>• Handle and store instruments with care to avoid any surface damage</li> </ul> <p>Trainees need to practice their skills in using equipment and multi-stage methods independently to prepare workstation, in a real or realistic environment.</p> <ul style="list-style-type: none"> <li>• Understanding the laser marking.</li> <li>• Maintained of laser marking</li> </ul>	<p>Practice or workshop</p>	<p>Learner's guide Videos Allocated laser marking videos Own notes on preparing complex instruments</p>

**Module 4: 072200882** Perform Packing

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<ul style="list-style-type: none"> <li>• How to perform a laser marking machine</li> <li>• How to prepare the workplace</li> <li>• How to use an EZCAD software</li> <li>• Understanding and knowledge of maintenance</li> </ul> <p>Arrange a question and answer session to clarify trainee understanding.</p> <p>To prepare for the practical sessions, each trainee inspection process and ask them to manager</p> <p>Check that each trainee understands their task.</p> <p>Trainees need to practice their skills in assembling and equipment to prepare, in a real or realistic environment.</p> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main</p>		

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
<p><b>LU3:</b> Perform stamping</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Prepare workstation according to work instructions</li> <li>• Arrange and set stamping tools (manual punch, hammer, stamping die / punch) as per process requirement</li> <li>• Perform punching on the instrument in designated area</li> <li>• Control quality of punching</li> <li>• Handle and store instruments with care to avoid any surface damage</li> </ul> <p>Trainees need to practice their skills in using equipment and multi-stage methods independently to prepare workstation, in a real or realistic environment.</p> <ul style="list-style-type: none"> <li>• Understanding the stamping.</li> <li>• Perform stamping</li> </ul>	<p>Practice or workshop</p>	<p>Learner's guide Videos Allocated stamping videos Own notes on preparing complex instruments</p>



**Module 4: 072200882** Perform Packing

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<ul style="list-style-type: none"><li>• Prepare the workplace</li></ul> <p>Arrange a question and answer session to clarify trainee understanding.</p> <p>To prepare for the practical sessions, each trainee inspection process and ask them to manager</p> <p>Check that each trainee understands their task.</p> <p>Trainees need to practice their skills in assembling and equipment to prepare, in a real or realistic environment.</p> <p>Prepare either:</p> <ul style="list-style-type: none"><li>• A flip chart</li><li>• A PowerPoint slide</li><li>• A handout</li></ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b></p>		

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>to record additional points their group had not identified. Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics. End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
<p><b>LU4:</b> Perform etching</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Clean the instrument surface to ensure dryness</li> <li>• Adjust stencil on etching machine and pour etching chemical on stencil</li> <li>• Adjust etching current according to product thickness</li> <li>• Perform etching by placing the instrument on etching stencil for set time, while ensuring connection with earth rod</li> <li>• Control quality of etching for position and sharpness</li> <li>• Control the etching surface with cleaner chemical and dry with cotton</li> <li>• Handle and store instruments with care to avoid any surface damage</li> </ul> <p>Trainees need to practice their skills in using equipment and multi-stage methods independently to finish complex products, in a real or realistic environment.</p> <ul style="list-style-type: none"> <li>• Prepare the workplace</li> <li>• Understanding of etching</li> </ul>	<p>Practice or workshop</p>	<p>Learner's guide Videos Allocated videos Own notes on etching</p>

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<ul style="list-style-type: none"> <li>• How to perform the etching process</li> <li>• Knowledge of etching chemical</li> <li>• Understanding of stencil</li> </ul> <p>Arrange a question and answer session to clarify trainee understanding.</p> <p>To prepare for the practical sessions, each trainee inspection process and ask them to manager</p> <p>Check that each trainee understands their task.</p> <p>Trainees need to practice their skills in assembling and equipment to prepare, in a real or realistic environment.</p> <p>Prepare either:</p> <ul style="list-style-type: none"> <li>• A flip chart</li> <li>• A PowerPoint slide</li> <li>• A handout</li> </ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx.</p>		

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<p>Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p> <p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		
<p><b>LU5:</b> Perform final packing</p>	<p>This session is about the following performance criteria:</p> <ul style="list-style-type: none"> <li>• Clean the instruments with cotton</li> <li>• Apply lubricant on instrument joints</li> <li>• Arrange packing material as per packing instructions</li> <li>• Pack the instruments as per packing instructions</li> <li>• Apply labels on packages as per customer instructions and shipment requirements</li> <li>• Store the packages in designated storage area as per stacking instructions</li> </ul> <p>Trainees need to practice their skills in independently present complex fish and shellfish dishes for service, in a real or realistic environment.</p> <ul style="list-style-type: none"> <li>• Final packing process</li> <li>• How to perform final packing</li> <li>• How to check the instruments before packing</li> </ul>	<p>Practice or workshop</p>	<p>Learner's guide Videos Allocated videos Own notes on final packing</p>

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Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
	<ul style="list-style-type: none"><li>• How to clean the instruments before packing</li><li>• Knowledge of instruction</li></ul> <p>After the practical sessions are completed, lead a feedback session. Ask learner's to complete a self-assessment form on their ability to prepare. Ask questions to confirm their understanding. Provide opportunities for trainees to ask their own questions.</p> <p>Prepare either:</p> <ul style="list-style-type: none"><li>• A flip chart</li><li>• A PowerPoint slide</li><li>• A handout</li></ul> <p>...showing the key topics about xxx. Go through all the key topics briefly and then allocate <b>one key topic</b> to each group.</p> <p>Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record <b>three main points</b> from their discussions that relate to <b>their key topic</b>.</p> <p>After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for xxx. Discuss these main points briefly with the whole group. Learners should make additional notes <b>on the flip chart</b> to record additional points their group had not identified.</p>		

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<b>Learning Unit</b>	<b>Suggested Teaching/ Learning Activities</b>	<b>Delivery Context</b>	<b>Media</b>
	<p>Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.</p> <p>End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.</p>		


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