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# SURGICAL INSTRUMENTS MANUFACTURING TECHNICIAN



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**ASSESSMENT PACKAGE**  
National Vocational Certificate Level 4

Version 1 - October, 2019



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**Document Version**

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<b>Title of Qualification:</b> NVQF Level II to IV Surgical Instrument Manufacturing Technician	CS Code: 072200886	Level: 4	Version: 01
<b>Competency Standard Title:</b> Ensure Quality of Products	<b>Assessment Date (DD/MM/YY):</b>  <b>Time Duration:</b>		

Candidate Details	Name: .....  Registration/Roll Number: .....
Guidance for Candidate	<p><b>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration &amp; assessment):</b></p> <ol style="list-style-type: none"> <li>1. <b>Assessment Task 1:</b> Establish product quality requirements</li> <li>2. <b>Assessment Task 2:</b> Develop quality testing procedures</li> <li>3. <b>Assessment Task 3:</b> Prepare quality assurance report</li> </ol> <p><b>And complete:</b></p> <ol style="list-style-type: none"> <li>1. <b>Knowledge assessment test (written or oral)</b></li> <li>2. <b>Portfolios at the time of assessment (if any)</b></li> </ol>
Minimum Evidence Required	<p><b>During a practical assessment, under observation by an assessor, you will complete:</b></p> <p><b>Assessment Task 1</b></p> <p><b>Performance Criteria 1:</b> Enlist quality parameters of the instruments with their values and tolerances by interpreting product drawing, technical specifications or master sample</p>
	<p><b>Assessment Task 2</b></p> <p><b>Performance Criteria 1:</b> Identify tools, instruments and gauges for testing quality parameters in different processes</p> <p><b>Performance Criteria 2:</b> Prepare standard testing procedures including frequency, sample size, report templates etc.</p>
	<p><b>Assessment Task 3</b></p> <p><b>Performance Criteria 1:</b> Gather quality and production reports and consolidate the data in concise form for further analysis</p> <p><b>Performance Criteria 2:</b> Analyse data using relevant quality tools (control charts, bar graphs, normal charts etc.)</p>
	<b>Portfolios required at the time of assessment (if any) for</b>

*Continued on following page*

**Assessors Judgment Guide** (to be completed by the assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: ..... Candidate Signature: .....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: ..... Assessor's code: ..... Signature of the Assessor: .....

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Nature of Activity							
Practical Skill Demonstration							
Knowledge Assessment							
Other Requirement							
Each Assessment Task (with Learning Unit)							
Assessment Task 1			<b>Description of assessment task 1</b> Establish product quality requirements				
During the practical assessment, candidate demonstrated the following:					Yes	No	Remarks
1	<b>Performance Criteria 1:</b> Enlist quality parameters of the instruments with their values and tolerances by interpreting product drawing, technical specifications or master sample				<input type="checkbox"/>	<input type="checkbox"/>	
Competent <input type="checkbox"/>			Not Yet Competent <input type="checkbox"/>				

Assessment Task 2			<b>Description of assessment task 2</b> Develop quality testing procedures				
During the practical assessment, candidate demonstrated the following:					Yes	No	Remarks
1	<b>Performance Criteria 1:</b> Identify tools				<input type="checkbox"/>	<input type="checkbox"/>	
2	<b>Performance Criteria 2:</b> Prepare standard testing procedures including frequency				<input type="checkbox"/>	<input type="checkbox"/>	
Competent <input type="checkbox"/>			Not Yet Competent <input type="checkbox"/>				

Assessment Task 3		<b>Description of assessment task 3</b> Prepare quality assurance report		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	<b>Performance Criteria 1:</b> Gather quality and production reports and consolidate the data in concise form for further analysis	<input type="checkbox"/>	<input type="checkbox"/>	
2	<b>Performance Criteria 2:</b> Analyse data using relevant quality tools (control charts, bar graphs, normal charts etc.)	<input type="checkbox"/>	<input type="checkbox"/>	
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		



<b>Title of Qualification:</b> NVQF Level II to IV Surgical Instrument Manufacturing Technician	CS Code:	Level: 4	Version: 01
<b>Competency Standard Title:</b> Ensure Quality of Products	<b>Assessment Date (DD/MM/YY):</b>  <b>Time Duration:</b>		

### WRITTEN ASSESSMENT

Question	Candidate's answer
1. What is a technical drawing?	<p>Technical drawing is a drawing or plan, which is used to communicate direction, technical specifics, sizes, material and other information to a group of people who are creating something to explain how something works or how to produce something.</p>
2. What is time and contingency management in production?	<ul style="list-style-type: none"> <li>• Time management is the process of organizing and planning how to divide your time between specific activities. Good time management enables you to work smarter not harder, so that you get more done in less time, even when time is tight and pressures are high. Failing to manage your time damages your effectiveness and causes stress.</li> <li>• Contingency management basically a plan B, which implement in case of failure of regular working/ production routine. Because of some machine failure and others defects/ draw backs. We have to prepare a contingency plan to meet our goals.</li> </ul>
3. Define vernier caliper and micrometer shortly and name the last count on the scale	<ul style="list-style-type: none"> <li>• Vernier caliper is a precise measuring instrument. It measure length, diameter, depth of hole etc. In vernier caliper we take measurement with the help of main scale and movable scale. Least count: 0.1mm</li> <li>• Micrometer is also a precise measuring instrument. It is used to measure length of work piece. In micrometer, we take measurement with the help of main scale and circular scale. Least count: 0.01mm</li> </ul>
4. What are the quality charts and graphs?	<ul style="list-style-type: none"> <li>• In all production processes, we need to monitor the extent to which our products meet specifications and standards. The quality graph and charts represents these specification and standards, which we have to follow during productions.</li> </ul>



Question	Candidate's answer
5. How does the process travel card help in production?	Process travel card plays a key role in production. Process travel card shows the processes done on the job and also other details like quantity etc.
6. Differentiate between QC / QA.	<ul style="list-style-type: none"> <li>• QC stands for quality control and QA stands for quality assurance. QA is a set of activities for ensuring quality in the processes by which products are developed. QC is a set of activities for ensuring quality in products at the end of production.</li> </ul>
7. Name the basic computer applications used for documentation.	<ul style="list-style-type: none"> <li>• Microsoft word</li> <li>• Microsoft excel</li> <li>• Microsoft power point</li> <li>• Inpage</li> </ul>
8. Which type of defects can we check through a microscope?	<ul style="list-style-type: none"> <li>• Cracks</li> <li>• Pin hole</li> <li>• Minor scratches</li> </ul>
9. What do you think about the role of effective communication skills in the work place?	<p>Effective communication skills in the work place creates:</p> <ul style="list-style-type: none"> <li>• Team building</li> <li>• Strong team</li> <li>• Boosts growth</li> <li>• Increases Innovation</li> <li>• Improves productivity</li> <li>• Increases efficiency</li> <li>• Increases loyalty</li> </ul>
10. Name the skills of a good team leader and what stands SOP for?	<p>Skills of a good team leader are:</p> <ul style="list-style-type: none"> <li>• Good communication skill</li> <li>• Creative/ critical thinking</li> <li>• Strong Organization Skills</li> <li>• Confident in the Team</li> <li>• Respectful to Others</li> <li>• Fair and Kind</li> </ul> <p>SOP stands for system operating procedure.</p>

<b>Title of Qualification:</b> NVQF Level II to IV Surgical Instrument Manufacturing Technician	CS Code: 072200888	Level: 4	Version: 01
<b>Competency Standard Title:</b> Supervise Production Process	<b>Assessment Date (DD/MM/YY):</b>  <b>Time Duration:</b>		

Candidate Details	Name: .....  Registration/Roll Number: .....
Guidance for Candidate	<p><b>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration &amp; assessment):</b></p> <ol style="list-style-type: none"> <li>1. <b>Assessment Task 1:</b> Prepare departmental production plan and acquire material from the store as per need</li> <li>2. <b>Assessment Task 2:</b> Assign duties and ensure production plan</li> <li>3. <b>Assessment Task 3:</b> Prepare production report</li> </ol> <p><b>And complete:</b></p> <ol style="list-style-type: none"> <li>4. <b>Knowledge assessment test (written or oral)</b></li> <li>5. <b>Portfolios at the time of assessment (if any)</b></li> </ol>
Minimum Evidence Required	<p><b>During a practical assessment, under observation by an assessor, you will complete:</b></p> <p><b>Assessment Task 1</b></p> <p><b>Performance Criteria 1:</b> Identify the machinery required for relevant process</p> <p><b>Performance Criteria 2:</b> Ensure the availability of required tools and equipment for relevant process</p> <p><b>Performance Criteria 3:</b> Incorporate machine maintenance schedule in the production plan</p> <p><b>Performance Criteria 4:</b> Prepare machine wise production schedule to ensure in time delivery</p> <p><b>Performance Criteria 5:</b> Ensure the usage of PPE according to process requirement</p> <p><b>Performance Criteria 6:</b> Generate the demand order to raw material store as per production schedule</p> <p><b>Performance Criteria 7:</b> Ensure availability of raw material as per required generated order (metallurgical and physical)</p> <p><b>Performance Criteria 8:</b> Distribute raw material to production processes in required quantities</p>

	<p><b>Assessment Task 2</b></p> <p><b>Performance Criteria 1:</b> Assign jobs to the workers along with work instructions</p> <p><b>Performance Criteria 2:</b> Instruct workers on their assigned tasks and duties</p> <p><b>Performance Criteria 3:</b> Monitor the workers' performance as per instructions</p> <p><b>Performance Criteria 4:</b> Ensure quality of product as per requirement</p> <p><b>Performance Criteria 5:</b> Ensure quantity of instrument produced as per production plan</p> <p><b>Performance Criteria 6:</b> Make sure the completion of production process within the lead time</p> <p><b>Performance Criteria 7:</b> Confirm data entry at every stage in process travel cards or process production reports</p>
	<p><b>Assessment Task 3</b></p> <p><b>Performance Criteria 1:</b> Gather and consolidate the production data in concise form for further analysis</p> <p><b>Performance Criteria 2:</b> Analyse data using relevant quality tools (control charts, bar graphs, normal charts etc.)</p> <p><b>Performance Criteria 3:</b> Compile production report and submit and present the report to management within defined timeline</p>
	<p><b>Portfolios required at the time of assessment (if any) for</b></p>

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Each Assessment Task (with Learning Unit)				
Assessment Task 1		Description of assessment task 1		
		Prepare departmental production plan and acquire material from the store as per need		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	<b>Performance Criteria 1:</b> Identify the machinery required for relevant process	<input type="checkbox"/>	<input type="checkbox"/>	
2	<b>Performance Criteria 2:</b> Ensure the availability of required tools and equipment for relevant process	<input type="checkbox"/>	<input type="checkbox"/>	
3	<b>Performance Criteria 3:</b> Incorporate machine maintenance schedule in the production plan	<input type="checkbox"/>	<input type="checkbox"/>	
4	<b>Performance Criteria 4:</b> Prepare machine wise production schedule to ensure in time delivery	<input type="checkbox"/>	<input type="checkbox"/>	
5	<b>Performance Criteria 5:</b> Ensure the usage of PPE according to process requirement	<input type="checkbox"/>	<input type="checkbox"/>	
6	<b>Performance Criteria 6:</b> Generate the demand order to raw material store as per production schedule	<input type="checkbox"/>	<input type="checkbox"/>	
7	<b>Performance Criteria 7:</b> Ensure availability of raw material as per required generated order (metallurgical and physical)	<input type="checkbox"/>	<input type="checkbox"/>	
8	<b>Performance Criteria 8:</b> Distribute raw material to production processes in required quantities	<input type="checkbox"/>	<input type="checkbox"/>	
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of assessment task 2 Assign duties and ensure production plan		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	<b>Performance Criteria 1:</b> Assign jobs to the workers along with work instructions	<input type="checkbox"/>	<input type="checkbox"/>	
2	<b>Performance Criteria 2:</b> Instruct workers on their assigned tasks and duties	<input type="checkbox"/>	<input type="checkbox"/>	
3	<b>Performance Criteria 3:</b> Monitor the workers performance as per instructions	<input type="checkbox"/>	<input type="checkbox"/>	
4	<b>Performance Criteria 4:</b> Ensure quality of product as per requirement	<input type="checkbox"/>	<input type="checkbox"/>	
5	<b>Performance Criteria 5:</b> Ensure quantity of instrument produced as per production plan	<input type="checkbox"/>	<input type="checkbox"/>	
6	<b>Performance Criteria 6:</b> Make sure the completion of production process within the lead time	<input type="checkbox"/>	<input type="checkbox"/>	
7	<b>Performance Criteria 7:</b> Confirm data entry at every stage in process travel cards or process production reports	<input type="checkbox"/>	<input type="checkbox"/>	
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of assessment task 3 Prepare production report		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	<b>Performance Criteria 1:</b> Gather and consolidate the production data in concise form for further analysis	<input type="checkbox"/>	<input type="checkbox"/>	
2	<b>Performance Criteria 2:</b> Analyse data using relevant quality tools (control charts, bar graphs, normal charts etc.)	<input type="checkbox"/>	<input type="checkbox"/>	
3	<b>Performance Criteria 3:</b> Compile production report and submit and present the report to management within defined timeline	<input type="checkbox"/>	<input type="checkbox"/>	
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		



<b>Title of Qualification:</b> NVQF Level II to IV Surgical Instrument Manufacturing Technician	CS Code:	Level: 4	Version: 01
<b>Competency Standard Title:</b> Supervise Production Process	<b>Assessment Date (DD/MM/YY):</b>  <b>Time Duration:</b>		

### WRITTEN ASSESSMENT

Question	Candidate's answer
11. Name the steps involved in surgical instrument manufacturing.	<ul style="list-style-type: none"> <li>• Forging</li> <li>• Machining</li> <li>• Assembling</li> <li>• Sheet metal operations</li> <li>• Grinding</li> <li>• Heat treatment</li> <li>• Polishing</li> <li>• Packing</li> <li>• Supervision</li> <li>• Ensure quality</li> </ul>
12. Define production plan.	<p>Production planning is the function of establishing an overall level of output, called the production plan. The process also includes any other activities needed to fulfill current planned levels of production, while meeting the firm's general objectives regarding profit, productivity, lead times, and customer satisfaction, as expressed in the overall production plan.</p>
13. What is time and motion study?	<p>Systematic observation, analysis, and measurement of the separate steps in the performance of a specific job for the purpose of establishing a standard time for each performance, improving procedures, and increasing productivity called motion and time study.</p>
14. Name the 2 production types and define them.	<ul style="list-style-type: none"> <li>• Batch product Batch production is a method used to produce similar items in groups, stage by stage. In batch production, the product goes through each stage of the process together before moving on to the next stage.</li> <li>• Job production Type of production, where items are made individually and each item is finished before the next one is started.</li> </ul>



Question	Candidate's answer
<p>15. Which specifications involved in demand order to acquire material from material issuance store?</p>	<ul style="list-style-type: none"> <li>• Material name</li> <li>• Material size</li> <li>• Material shape</li> <li>• Required quantity</li> <li>• Material used in</li> </ul>
<p>16. Is their need of QC after proper QA performance? If yes/ No, then why?</p>	<p>If the QA performance is 100% all the time, then there is no need of QC at production. Because we assure the quality at the time of production.</p>
<p>17. What is a production plan and report?</p>	<p>Production planning the <a href="#">planning</a> of <a href="#">production</a> and <a href="#">manufacturing</a> modules in a company or industry. It utilizes the <a href="#">resource allocation</a> of activities of employees, <a href="#">materials</a> and <a href="#">production capacity</a>, in order to serve different customers.</p> <p>Production report represents the working status. A production report details the total cost, including raw materials and operating costs, of producing a product.</p>
<p>18. What is short key for cut, copy and paste in MS office?</p>	<ul style="list-style-type: none"> <li>• Short key for cut Ctrl + X</li> <li>• Short key for copy Ctrl + C</li> <li>• Short key for paste Ctrl + V</li> </ul>
<p>19. What do you think about the role of effective communication skills in the work place?</p>	<p>Effective communication skills in the work place creates:</p> <ul style="list-style-type: none"> <li>• Team building</li> <li>• Strong team</li> <li>• Boosts growth</li> <li>• Increases Innovation</li> <li>• Improves productivity</li> <li>• Increases efficiency</li> <li>• Increases loyalty</li> </ul>
<p>20. What is SOP and define contingency management?</p>	<ul style="list-style-type: none"> <li>• SOP stands for system operating procedure. Basically it's a detailed procedure (rule and regulations) of organizations. A standard operating procedure (SOP) help workers carry out complex routine operations. SOPs aim to achieve efficiency, quality output and uniformity of performance, while reducing miscommunication and failure to comply with industry regulations.</li> <li>• Contingency management basically a plan B, which implement in case of failure of regular working/ production routine. Because of some machine failure and others defects/ draw backs. We have to prepare a contingency plan to meet our goals.</li> </ul>

