

Laboratory Worksheet

11

Key Shaping

Names: _____

(Last Name, First Name MI.)

Group No.: _____

Date Started: _____

Date Completed: _____

(yy/mm/dd)

Instructor: Engr. Nico O. Aspra, M.Eng., RMP, LPT

*Note: When printing the worksheet, use long bond paper (8.5 in × 13 in). Print the Data Collection up to the Analysis section **back-to-back** on a single sheet of paper. Print the Assessment Sheet on a separate sheet and staple it at the back of this worksheet.*

11.1

Data Collection

Measure the key after machining and compare with the design specifications. Verify that it fits both the shaft and flange keyways. Record your observations in Table 11.1.

Table 11.1: Comparison of Machined Key Dimensions with Design Specifications

Dimension	Specification	Actual	Deviation	Remarks
Length of Key				
Width of Key				
Thickness of Key				
Tip Radius (End 1)				
Tip Radius (End 2)				
Surface Finish Quality				

* Surface quality should be described as rough, matte, glossy, or mirror-like. Tip radius may be measured or described qualitatively.

11.2

Analysis and Discussion

Reflect on the exercise and draw upon both your experience and the data gathered to respond to the following questions. Support your answers with specific examples from your observations.

Question 1

What are the advantages of using a shaper machine for rough profiling the key instead of directly grinding?

Question 2

Why is it important to surface grind the key after shaping? What tolerances are typically expected in key dimensions?

Question 3

How did you ensure the symmetry and correct radius of the rounded ends? What issues might arise if the tips are not properly shaped?

Question 4

Describe the fit of the key when inserted into the shaft and flange keyways. Was it snug, loose, or difficult to insert?

Question 5

Based on your experience, what improvements can be made in the setup, shaping sequence, or finishing process to increase precision and efficiency?

Assessment Sheet

Note: This page must be stapled at the back of your laboratory worksheet.

Individual Contribution Declaration

In this section, list and briefly describe each member’s contributions to the activity. Itemize the specific tasks performed and assign a corresponding percentage to each member. The combined percentage must total 100%.

Name	Designation (Leader/Member)	Individual Accomplishments	%	Signature
Total			100%	

Academic Honesty Statement

I/We hereby certify that I/we have written and developed this report. I/We affirm that the report I/we am/are submitting as part of the requirements of this course is original and not plagiarized. My/Our signature/s below constitute/s my/our pledge that I/we have fully complied with Bicol University’s policy on academic integrity. I/We understand that academic dishonesty will not be tolerated and that, if such instance/s are found and proven in this submitted work, a final grade of 5.0 will automatically be given to me/us, and I/we will be subjected to disciplinary action/s sanctioned by Bicol University.

Signature over printed name (Group Leader)

Do not write beyond this point. This section will be completed by the instructor.

Performance Assessment Rubric

(For instructor use only)

Criteria	4 – Exemplary	3 – Proficient	2 – Developing	1 – Beginning	Score
Understanding of Task	Demonstrates complete understanding of the objectives, theory, and relevance of the activity	Shows good grasp of the task with minor conceptual gaps	Basic understanding with some confusion about the purpose or process	Limited or incorrect understanding of the task’s goal	
Execution Accuracy	All procedures and tools are correctly used with high precision and consistency	Most steps are followed correctly with minor errors or inefficiencies	Several key steps missed or tools used with noticeable inaccuracy	Process poorly executed; improper use of tools or procedures	
Measurements	Measurements are accurate, clearly recorded, and well-analyzed against design targets	Mostly accurate data with partial analysis or incomplete comparison	Data is somewhat inaccurate or poorly explained	Lacks measurements or data is irrelevant or incorrect	
Reflection and Analysis	Deep insights, thoughtful evaluation of outcomes, and strong suggestions for improvement	Reflection shows good understanding with reasonable suggestions	Limited self-assessment or vague comments	Little to no reflection; fails to engage with outcomes	
Presentation	Report is highly organized, clear, and free of major errors in structure or expression	Report is generally clear and well-organized with minor lapses	Report lacks clarity or organization; some confusion in formatting or writing	Disorganized or incomplete submission; difficult to follow	
Total					