

Laboratory Worksheet

12

Test Fitting and Assembly

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.

12.1

Data Collection

During this step, verify the fit and alignment of all assembled parts. Record your actual observations and compare them with the expected results to assess whether the machining processes met the design requirements.

Table 12.1: Fit Verification and Assembly Observations

Component or Dimension	Expected Result	Actual Observation
Key fit in shaft	Snug, flush fit without wobble	
Flange seating on shaft	Aligned with no visible gaps	
Key engagement in flanges	Smooth, flush along length	
Overall symmetry	Equal gap/height on both sides	
Axial play or movement	Minimal to none	
Adjustments needed	Deburring/polishing/realignment	

12.2

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

Describe how the key fit into the shaft and flanges. Was there any interference or looseness?

Question 2

What signs indicated a successful alignment of the flange and keyway system?

Question 3

How did dimensional errors (if any) in previous machining steps affect the final fit?

Question 4

What corrective actions, if any, did you perform during test fitting?

Question 5

Reflect on how test fitting reinforces the importance of tolerances in mechanical design and manufacturing.

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					