COURSE DESCRIPTION:
This course will introduce Quality Control Procedures that will provide the learner with the principles of locating, analyzing and performing techniques used for precision measurement to be obtained, and the common tools that can be associated with the procedures. The course will also emphasize on the importance of interchangeability.

METHOD OF INSTRUCTION: A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:
I. Intro to quality control standards
   A. Importance of interchangeability
   B. Determination of proper tools for variety measurements
   C. Precautions with measuring tools
   D. Recordkeeping
II. Precision and non-precision measuring tools  
A. Proper selection of correct tools used in measuring  
B. Measuring parts by using various methods  
C. Calculation of measurements  
D. Classification of specialized measuring tools  
E. Measuring tool accuracy  
F. Calibration of precision tools  
G. Storing and care of measuring tools  

III. Intro to tolerances  
A. Identifying part deviations  
B. Locating information on blue prints  
C. Locating information for standards  
D. Calculations to determine size, shapes and tolerance  

IV. Surface finishes  
A. Introduction to surface conditions  
B. Tools and comparators used to define surface conditions  
C. Hardness scales  
D. Hardening conditions  
E. Electro plated surface finishes  
F. Painted surface finishes  

EXPECTED LEARNER OUTCOMES:  
A. Document measurement information for QC  
B. Select correct measuring tool for procedure  
C. Perform mathematical calculations to determine correct solutions for tasks.  

COURSE COMPETENCIES:  
Upon completion of this course:  

The student will be able to document measurement information for QC  
1. The student will be able to record measurements and plot using CMM.  
2. The student will be able to define interchangeability.  
3. The student will be able to define statistical process control. (SPC)  
4. The student will be able to locate examples of sliding, running, thread classes, within the machinery’s handbook.  
5. The student will be able to explain the importance of 1st piece off inspection.  
6. The student will be able to calibrate measuring tools using standards and or gage blocks.  
7. The student will be able to document and record the calibration of measuring tools.  

The student will be able to select correct measuring tool for procedure  
8. The student will be able to identify graduations and measure parts with scales and tapes.  
9. The student will be able to measure and or layout parts with various spring type measuring devices.  
10. The student will be able to describe the parts of the combination square and all its uses.  
11. The student will be able to demonstrate the use of the OD and ID micrometers.
12. The student will be able to demonstrate the use of blade type calipers.
13. The student will be able to demonstrate the use of depth type measuring devices.
14. The student will be able to demonstrate the use of special purpose micrometers and measuring scales.
15. The student will be able to demonstrate the use of protractors with and without a Veneer scale.
16. The student will be able to inspect and explain the uses for ring, telescoping, plug/pin, taper, snap, small hole, radius, GO/NOGO types of gages.
17. The student will be able to perform measuring with the use of dial indicators.
18. The student will be able to perform set-ups with the use of dial indicators.
19. The student will be able to perform measurements utilizing height gage and surface plate.
20. The student will be able to measure threads (TPI) with screw pitch gage.
21. The student will be able to set-up and perform production measuring on CMM.
22. The student will be able to describe SPC and when it’s used.
23. The student will be able to set-up and measure parts with optical comparator.
24. The student will be able to inspect surface finishes using surface roughness gage.
25. The student will be able to properly clean and store measuring tools.

The student will be able to perform mathematical calculations to determine correct solutions for tasks.

26. The student will be able to calculate 3 wire size and measurement over wires.
27. The student will be able to calculate maximum and minimum deviation from measurements.
28. The student will be able to locate tolerances for class of fits utilizing machinery’s handbook.
29. The student will be able to calculate sine bar angles and block heights.
30. The student will be able to describe stack tolerance and conditions related to outcomes.

ASSESSMENT OF LEARNER OUTCOMES:
Student progress is evaluated by means that include, but are not limited to, exams, written assignments, and class participation.

SPECIAL NOTES:
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.
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