DATE OF LAST REVIEW: 02/2013

CIP CODE: 48.0501

SEMESTER: Departmental Syllabus

COURSE TITLE: Machine Tool Processes

COURSE NUMBER: MACH0107

CREDIT HOURS: 1

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

PREREQUISITES: Fundamentals of mathematics w/ a grade of "C" or higher or appropriate score on the math assessment test.

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, http://www.kckcc.bookstore.com, for the required texts for your particular class.

COURSE DESCRIPTION:
This course will introduce the learner with the hazards that may be found in an industrial type setting. And will emphasize how to make quality suggestive changes, It will also concentrate on tool selection for a particular job and allow the student to make sound decisions in estimating, and machine cycle times. Group problem solving skills will be applied in this course to brainstorm cost analysis and tool geometry.

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 Tool design.
   A. Importance of interchangeability
   B. Determination of proper tools selection
   C. Precautions associated with cutting fluids
D. Identification of carbide inserts numbering systems
E. Work holding systems
F. Recordkeeping

II. Conducting shop inspections
   A. Job hazard analysis
   B. Exit signs and locations
   C. Fire extinguisher locations and how it is operated
   D. Understands and participates in disaster control exercises
   E. Hazards associated with machine shops
   F. Proper dress for industry
   G. Proper cleanliness of shop and related equipment

III. Machinery’s handbook
   A. Understanding the continent for reference within the book
   B. Locating Information for standards
   C. Hardware identification and limits for fasteners
   D. Identify types and classification for fits.
   E. Location of formulas for common mathematic problems used in manufacturing

IV. Mathematical Formulas
   A. Calculations to optimize stock
   B. Determine waste or stock drop
   C. Calculations for part fits
   D. Calculations related to thread fits and its importance
   E. Calculations for speed and feeds
   F. Calculations for chip load vs. equipment horsepower

VI. Hand Tools:
   A. Location of common hand tools
   B. Safely uses hand tools
   C. Identification of wrench types
   D. Identification of sockets and ratchets
   E. Selection of snap rings pliers and specialized retention tools
   F. Defines hammers for uses and application
   G. Locates and selects proper screwdrivers, pry bars, punches and chisels.

EXPECTED LEARNER OUTCOMES:
A. The student will be able to select tooling for job planning.
B. The student will be able to understand the importance of interchangeability.
C. The student will be able to perform selecting and diluting cutting fluids
D. The student will be able to conduct a job analysis
E. The student will be able to utilize the machinery’s handbook.
F. The student will be able to perform mathematical formulas.
G. The student will be able to identify hand tools.

COURSE COMPETENCIES:
Upon completion of this course:

The student will be able to select tooling for job planning.
1. The student will be able to identify and select proper tool holders.
2. The student will be able to identify carbide inserts for tool holder selected.
3. The student will be able to install inserts and their holding devices.
4. The student will be able to maintain logs for tooling used.
5. The student will be able to select correct inserts to optimize time and finishes

*The student will be able to understand the importance of interchangeability*
6. The student will be able to define interchangeability.
7. The student will be able to describe depth of cuts and its importance.
8. The student will be able to analyze blueprints to select correct tooling and layout.

*The student will be able to perform selecting and diluting cutting fluids*
9. The student will be able to select and apply cutting fluids.

*The student will be able to conduct a job analysis.*
10. The student will be able to create job hazard analysis.
11. The student will be able to identify all shop exits.
12. The student will be able to locate all firefighting equipment and describe how to use and its uses.
13. The student will be able to dress correctly for manufacturing.
14. The student will be able to identify shop hazards.
15. The student will be able to properly store oily rags.
16. The student will be able to apply precautions needed to minimize shop hazards with equipment.
17. The student will be able to adhere to safety equipment use.
18. The student will be able to summarize preparations for machine operations.
19. The student will be able to describe cutting effects on metal.

*The student will be able to utilize the machinery’s handbook.*
20. The student will be able to understand content within the machinery’s handbook.
21. The student will be able to locate information in the machinery’s handbook.
22. The student will be able to locate tolerances for class of fits utilizing machinery’s handbook.
23. The student will be able to demonstrate knowledge of locating mathematical formulas in the machinery’s handbook.
24. The student will be able to select fasteners for application utilizing machinery’s handbook standards.
25. The student will be able to examine specifications in machinery’s handbook needed to machine parts to size.

*The student will be able to perform mathematical formulas.*
26. The student will be able to perform mathematical calculations to determine stock needed and stock loss.
27. The student will be able to identify fits and calculates parts for final machining.
28. The student will be able to calculate feed and Speeds.
29. The student will be able to calculate horsepower vs. depth of cut.
30. The student will be able to calculate cycle times.
31. The student will be able to describe the importance of cycle times and just in time machining.
32. The student will be able to describe the importance of speed and feeds.

_The student will be able to identify hand tools._
33. The student will be able to identify hand tool classifications.
34. The student will be able to select correct sockets and related tools.
35. The student will be able to select proper screwdrivers.
36. The student will be able to select hammers for application.
37. The student will be able to identify snap ring retention tools.
38. The student will be able to properly select wrenches for application.
39. The student will be able to correctly select punches and Chisels.
40. The student will be able to use pry bars correctly.
41. The student will be able to dress tools for corrective actions.
42. The student will be able to properly clean and store tools.
43. The student will be able to maintain tool inventory.
44. The student will be able to safely use hand tools.

**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.

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