MACH A115: PRODUCTION MACHINING TECHNIQUES

Item	Value
Curriculum Committee Approval Date	12/02/2020
Top Code	095630 - Machining and Machine Tools
Units	2 Total Units
Hours	72 Total Hours (Lecture Hours 18; Lab Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

This course emphasizes production machining. Set up and running of more than one part on a variety of machines including but not limited to engine lathe, chucker lathe, ID and OD grinder, vertical mill and horizontal mill. PREREQUISITE: MACH A100 and MACH A105 and MACH A110 or instructor permission. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Properly set up and operate milling machines, engine lathes and chuckers using production machining techniques.
2. Calculate time values for both set up and machine run time.
3. Properly sequence the processes needed to complete a job.

Course Objectives

- 1. Setup and operate a chucker lathe.
- 2. Setup and complete a production run of parts.
- 3. Schedule the sequences of operations to a production machine.
- 4. Use production tooling, equipment and setup techniques.
- 5. Set up production machines using multiple tool stations.
- 6. Calculate machine time values for common operations.
- 7. Calculate setup time values for common operations.
- 8. Recognize the implication of heat treatment to operation sequencing.

Lecture Content

Course Orientation Grading Lab assignments Tour of shop facilities Current production periodicals Notebook of current articles Overview of reading assignments Testing procedures Safety Production Paper Work The route sheet Standard hours Setup hours Operation prints Production Tooling Fixtures Jigs Form tools Job Planning Operation sequencing Heat treating considerations Time calculations Cost factors Chucker Lathe Setup and operation Tool setting Clip and stop usage Vertical Mill Use of vise stops Special setup techniques Special tooling Horizontal Mill Special setup techniques ID, OD Grinder

Lab Content

See Course Content.

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- Lab (04)
- DE Live Online Lab (04S)

Instructional Techniques

Lecture, demonstration, and laboratory activity on a variety of machines

Reading Assignments

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Writing Assignments

Students will write short answer quizzes and exams; some exams may be practical exercises

Out-of-class Assignments

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Demonstration of Critical Thinking

Quizzes, final exam will be 40% and laboratory work evaluation will 60% of final grade

Required Writing, Problem Solving, Skills Demonstration

Students will write short answer quizzes and exams; some exams may be practical exercises

Other Resources

1. Handouts to be provided and distributed by the instructor.