

Master Course Syllabus

Department: Engineering Technology **Course Prefix/Number:** IT 350

Official Course Title: Numerical Control Systems

Master Syllabus Approved by Department on: 05 / 11 / 05
month date year

I. **Catalog Description:**

Principles, techniques, and applications of numerically controlled machine tools. Application of the APT system. Laboratory experiences in processing, writing, debugging, and processing the N/C part program. Lab fee \$10.

II. **Prerequisites:** IT 117 or approval of the instructor

III. **Expanded Course Description:**

Numerical control systems provides students with an introduction to machine control including G & M codes, post processing, and types of interpolation methods. The class will heavily emphasize lab based experiences including use of a CAD\CAM system to generate and simulate tool paths prior to testing on the CNC mill

IV. **Intended Student Learning Outcomes:** Upon completion of the course, students will be able to:

1. Identify the major differences between numerical control and computer numerical control.
2. Identify and describe the six functions of a CNC control unit.
3. Describe two subsystems of servo drive control.
4. Describe the five functions required in numeric control operations.
5. Describe and perform process planning.
6. Identify important features to numerical control programming provided by part drawings.
7. Identify and describe three major components of CNC tooling systems.
8. Identify five major components of the tool holder and explain their function.
9. Explain and apply the three position locating principle.
10. Read and use machine code programming to produce basic contours.
11. Identify and describe specialized machine codes for numerical control machines.
12. Create cutter paths using CAD/CAM software.
13. Use verification software to troubleshoot cutter path problems.
14. Apply appropriate feeds and speeds.

V. Unless otherwise stipulated in this master syllabus by the department, the following items are subject to faculty discretion as described in each faculty member's individual course outline/syllabus:

- a) Course Requirements? (grading/evaluation procedures; class attendance policy; term papers, projects, field assignments; examinations; class participation, etc.)
- b) Required Text(s)?

b) Bibliography?

- VI. Academic Honesty: Cheating, plagiarism (submitting another person's materials or ideas as one's own), or doing work for another person who will receive academic credit are all-impermissible. This includes the use of unauthorized books, notebooks, or other sources in order to secure or give help during an examination, the unauthorized copying of examinations, assignments, reports, or term papers, or the presentation of unacknowledged material as if it were the student's own work. Disciplinary action may be taken beyond the academic discipline administered by the faculty member who teaches the course in which the cheating took place.
- VII. Students With Disabilities Policy: It is the policy of Tarleton State University to comply with the Americans with Disabilities Act (ADA) and other federal, state, and local laws relative to the provision of disability services. Students with disabilities attending Tarleton State University may contact the Office of Disability Services at (254) 968-9478 to request appropriate accommodation. Furthermore, formal accommodation requests cannot be made until the student has been officially admitted to Tarleton State University.

Department Head Signature/Date:

Signature

____/____/_____
Date