VERNON COLLEGE
SYLLABUS

DIVISION: Information and Technology DATE: 2020-2021

COURSE NUMBER AND TITLE: MCHN 1438 Basic Machine Shop I

CREDIT HRS: 4 HRS/WK LEC: 3 HRS/WK LAB: 2 LEC/LAB COMB: 5

I. VERNON COLLEGE GENERAL EDUCATION PHILOSOPHY STATEMENT

General education at Vernon College reflects the institution's deep conviction that successful, satisfying lives require a wide range of skills and knowledge. Through the Texas Core Curriculum and through support and reinforcement in all non-core courses, students will gain a foundation of knowledge of human cultures and the physical and natural world, develop principles of personal and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning.

CORE OBJECTIVES (GENERAL EDUCATION OUTCOMES)

- Critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and synthesis of information
- Communication Skills – to include effective development, interpretation, and expression of ideas through written, oral, and visual communication
- Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- Teamwork - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
- Personal Responsibility – to include the ability to connect choices, actions and consequences to ethical decision making
- Social Responsibility – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities

II. CATALOG DESCRIPTION:

A course that introduces the student to machining fundamentals. The student will use basic machine tools including the lathe, milling machine, drill press, power saw, and bench grinder. Machine terminology, theory, math, part layout, and bench work using common measuring tools is included. Emphasis is placed on shop safety, housekeeping, and preventative maintenance. Lab Fee: $24.00; Program Fee: $62.00

III. REQUIRED BACKGROUND:

None

IV. STUDENT E-MAIL:

All students should activate and regularly check their Vernon College issued student email account. Student emails are an official form of communication between Vernon College and students and will be used by various components of the college including the Office of Financial Aid, Admissions & records, the Business Office, Student Services, and Instructional Services.

Additionally, an active VC student email account is required for students to access online courses and supplemental instruction provided on the College's Learning Management System – *Canvas*.

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V. TEXTS, AND OTHER REFERENCE MATERIALS:

John R. Walker and Bob Dixon "Machining Fundamentals", GW Publishers, 10th Edition
"MACHINERY'S HANDBOOK", Industrial Press, 31st Edition

VI. METHODS OF INSTRUCTION:

Lecture, exams, hands-on experience, demonstration, and labs

Students desiring auxiliary aids and services for this course should make their requests to the instructor and the PASS Department Director/Office for Students with Disabilities Coordinator.

VII. COURSE CONTENT:

1. Identifying parts and function of lathe and mill controls
2. Experience the feel, sight, and sound of cutting on the lathe and mill
3. Turning precise diameters and depths (ID and OD)
4. Facing operations (cutting to length)
5. Knurling, threading, tapering, drilling, tapping, turning between centers
6. Using Form tools and Proper selection of tooling
7. Computing speeds and feeds for the given material
8. Experiencing the difference between Climb/Conventional Milling
9. Indicating and alignment of vises and fixtures
10. Reading and applying blueprint dimensions for part creation
11. General machine maintenance
12. Boring and Dividing head operations

Students will also be required to read textbook chapters and take electronic exams on materials related to the lathe and other common tools and equipment found in the machine shop. Emphasis will be placed on safety and machine maintenance.

VIII. COURSE OUTCOMES:

By the end of this course, each student should be able to:

1. Demonstrate set-up and use of the lathe, milling machine, drill press, power saw, and bench grinder applying good housekeeping, and proper safety
2. Use precision instruments to perform bench work including part layout, drilling, reaming, taping, press fitting, location of hole centers and surfaces
3. Set up power saws for cutoff operation
4. Demonstrate tooling maintenance, and hazardous material handling.
5. Perform preventative maintenance
6. Interpret blueprints

IX. ASSESSMENT:

The students will demonstrate proficiency in the outcomes listed above through participation in class activities/ projects and performance on quizzes and/or examinations. (See course outline for time schedules of examinations and grading computations.)