2024-2025 Robotics and Automation C.Smith

DATES	DESCRIPTION	DAILY OBJECTIVES
Week 1	Student Orientation	1. Greet students(All About Me) 2. Break the Ice 3. Class Procedures(Trivia Games) 4. Safety Procedures(Trivia Games) 5. Resume` Game Paperwork
Week 2	Intro to Manufacturing Soft Skills	1. Daily Bell Ringer- The Oz Principle 2. Communication- Games, Product Identification, Bad Movie Synopsis 3. Identify Parts of a Resume` 4. Construct Resume 5. Describe how to fill out an online application 6. Teamwork- Cup towers, Note card structures, Introduce Amatrol Laps and eLearning
Week 3	Industry 4.0 Introduction to Mechatronics	Daily Bell Ringer- The Oz Principle Introduction to Advanced Manufacturing Objective 1 - Define Manufacturing and Identify Types of Manufactured Products Objective 2 - Define Advanced Manufacturing and Identify Three Examples Objective 3 - Describe the Role of Product Design in Advanced Manufacturing
Week 4	Industry 4.0 Technology and Manufacturing	9/4 - Labor Day (No School) Daily Bell Ringer- The Oz Principle Objective 1 - Describe the Impact of Computers on Advanced Manufacturing Objective 2 - Describe the Benefits of Factory Automation Objective 3 - Describe the Function of a CNC Machine Objective 4 - Identify Two Types of Robots Objective 5 - Describe the Function of a PLC Objective 6 - Explain the Use of Software in Advanced Manufacturing Objective 7 - Describe the Use of New Technologies in Advanced Manufacturing

Week 5	Industrial Internet of Things	Daily Bell Ringer- The Oz Principle Objective 1 - Define Industry 4.0 and Explain Its Benefits Objective 2 - Define the Industrial Internet of Things (IIoT) and Its Benefits Objective 3 - Describe the History of IIoT Objective 4 - Describe the Components of Industrial Internet of Things (IIoT) Objective 5 - Describe Industry Sector Applications of IIoT Objective 6 - Describe Manufacturing Applications of Industrial Internet of Things (IIoT) Objective 7 - Describe Manufacturing Logistics Applications of Industrial Internet of Things (IIoT) Self Review 1
Week 6	Safety Responsibility	Daily Bell Ringer- The Oz Principle Objective 1 - Define Workplace Health and Safety and Explain Its Importance Objective 2 - Describe the Importance of Safety Policies Objective 3 - Describe the Results of Unsafe Behavior Objective 4 - Describe the Purpose of the Occupational Safety and Health Administration Objective 5 - Describe the Purpose of the Environmental Protection Agency Objective 6 - Describe the Purpose of NIOSH, EPCRA, and State Safety Agencies Objective 7 - Describe the Safety Responsibilities within a Company Objective 8 - Describe How to Locate Safety Regulations and Policies
Week 7	Hand Tools 1	Daily Bell Ringer- The Oz Principle Objective 1 - Describe Basic Types of Fasteners Objective 2 - Describe How Parts Are Assembled Using Threaded Fasteners Objective 3 - Describe How to Use a Combination Wrench Objective 4 - Describe How to Use a Socket Wrench Objective 5 - Describe How to Use a Backup Wrench Objective 6 - Describe How to Use a Hex Key Wrench Objective 7 - Describe How to Use a Straight-Slotted Screwdriver Objective 8 - Describe How to Use a Phillips Head Screwdriver
Week 8	Dimensional Measurements	Daily Bell Ringer- The Oz Principle

		Objective 1 - Define Dimensional Measurement and Explain Its Importance Objective 2 - Describe Two Systems of Dimensional Measurement Used in Manufacturing: US Customary and SI Objective 3 - Describe How to Use an SI Machinist's Rule Objective 4 - Define Measurement Accuracy and Precision Objective 5 - Define Resolution and Explain Its Effect on Accuracy Skill 1 - Use a Metric Rule to Measure an Outside Length of a Part Objective 6 - Describe How to Use a US Customary Machinist Rule Skill 2 - Use a US Customary Machinist Rule to Measure a Length
Week 9	Measurement Conversion Introduction to Print Reading	Daily Bell Ringer- The Oz Principle Objective 1 - Describe How to Convert from Decimal US Customary Units to SI Units Objective 2 - Describe How to Convert SI Units to US Customary Units Objective 3 - Describe How to Convert Measurements Made in Common Fractions to Decimal Inches Objective 1 - Define an Engineering Drawing and a Blueprint Objective 2 - Describe the Four Types of Engineering Drawings Used in Manufacturing Objective 3 - Describe Three Methods of Creating an Engineering Drawing Objective 4 - Describe the Main Sections of an Engineering Drawing Objective 5 - Define a Multiview Drawing and an Isometric Drawing Objective 6 - Identify the Organizations that Set Drawing Standards Objective 7 - Define the Alphabet of Lines Objective 8 - Describe Three Drawing Line Types: Object, Hidden, and Center Objective 9 - Describe the Function of Line Precedence
Week 10	Multiveiw Drawings BluePrint Dimensions and Note	Bell Ringer- The Oz Principle Objective 1 - Describe How to Interpret a Third Angle Projection Multiview Drawing Objective 2 - Describe How to Choose Views for a Multiview Drawing Objective 3 - Describe How to Interpret Sectional Views Objective 4 - Describe How to Interpret Auxiliary Views Objective 5 - Describe How to Interpret a First Angle Projection Multiview Drawing Objective 6 - Describe How to Determine if a Multiview Drawing Uses First or Third Angle Projection Objective 1 - Describe the Function of an Engineering Drawing Dimension Objective 2 - Describe How to Dimension Linear Features Objective 3 - Describe How to Dimension Circular Features Objective 4 - Describe How to Dimension Arcs Objective 5 - Describe How to Dimension Hole Features Objective 6 - Describe How to Dimension Angular Features

		Objective 7 - Describe Guidelines for Dimensioning Multiview Drawings 10/20 - PD Day (No Students)
Week 11	Tolerancing	Daily Bell Ringer- The Oz Principle Objective 1 - Define a Tolerance and Explain Its Importance Objective 2 - Describe How to Interpret a Conventional Tolerance on a Print Objective 3 - Describe How to Interpret a Tolerance Note Objective 4 - Define Baseline Dimensioning and Give an Advantage Objective 5 - Define Maximum and Minimum Material Conditions Objective 6 - Define Clearance and Allowance Objective 7 - Define Three Types of Fits Objective 8 - Define Geometric Dimensioning and Tolerancing Objective 9 - Define Five Types of Geometric Features Objective 10 - Define a Datum and a Datum Feature and Explain Their Importance Objective 11 - Describe a Feature Control Frame
Week 12	Manufacturing Drawings and Scales	Objective 1 - Describe Common Drawing Sizes Objective 2 - Describe How to Interpret a Drawing Scale Objective 3 - Describe the Types of Information on an Engineering Drawing Objective 4 - Describe How to Interpret Print Notes Objective 5 - Describe How to Interpret a Title Block Objective 6 - Describe How to Interpret a Change Block Objective 7 - Describe How to Interpret a Materials Block Objective 8 - Describe How to Interpret a Tolerance Block Objective 9 - Describe How to Interpret a Surface Finish Symbol Objective 10 - Describe How to Interpret a Process Drawing Objective 11 - Describe How to Interpret an Assembly Drawing
Week 13	Calipers	Objective 1 - Describe the Function of a Precision Measurement Tool Objective 2 - Describe the Basic Operation of a Dial Caliper Objective 3 - Describe How to Calibrate a Dial Caliper Objective 4 - Describe How to Use a Dial Caliper Objective 5 - State the Typical Accuracy of a Dial Caliper Measurement and Explain What Affects It Skill 1 - Perform Measurements Using a Dial Caliper Objective 6 - Describe the Basic Operation of a Digital Caliper Objective 7 - Describe How to Use a Digital Caliper Skill 2 - Perform Measurements Using a Digital Caliper

Week 14	Micrometer Measurement	Objective 1 - Describe the Basic Operation of a Micrometer Objective 2 - Describe How to Read a Micrometer with SI Units Objective 3 - Describe How to Test Micrometer Calibration Objective 4 - Describe How to Use an Outside Micrometer with SI Units Skill 1 - Perform Measurements Using an Outside Micrometer Objective 5 - Describe How to Use an Inside Micrometer Objective 6 - Explain a Micrometer's Accuracy
		Thanksgiving Break
Week 16	Mechanical Power	Objective 1 - Define Force and Give Its Units of Measurement Objective 2 - Define Weight and Give Its Units of Measurement Objective 3 - Define Mass and Give Its Units of Measurement Objective 4 - Define Work and Give Its Units of Measurement Objective 5 - Define Mechanical Power and Give Its Units of Measurement Objective 6 - Describe Two Types of Stored Mechanical Energy Objective 7 - Describe Hooke's Law and Explain Its Importance Skill 1 - Use a Spring Scale to Measure Forces and Weights
Week 17	Mechanical Power Transmission	Objective 1 - Describe the Function of a Mechanical Power Transmission System Objective 2 - Describe Methods of Coupling a Mechanical Power Transmission Objective 3 - Describe Methods of Parallel Shaft Mechanical Power Transmission Objective 4 - Describe the Basic Operation of a Bearing Objective 5 - Describe How to Install and Adjust a Pillow Block Bearing Objective 6 - Describe Two Methods of Mounting a Shaft Bearing and Give an Application of Each Objective 7 - Describe the Basic Operation of a Shaft Coupling

Week 18	Gear Drives	Objective 1 - Describe the Basic Operation of a Gear Drive Objective 2 - Describe How to Calculate Gear Ratio Objective 3 - Describe How to Calculate Gear Drive Speed Objective 4 - Describe How to Calculate Gear Drive Torque Objective 5 - Describe How to Install a Gearbox Skill 1 - Measure the Mechanical Advantage of a Gear Drive
		Winter Break
		Spring Break
